

KIC 005358241

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})
005358241-01	OBS	0829.01	18.649285	137.474328	890.2	4.744	36.0	40.7	1.05	5775	3.59	57.26
005358241-02	OBS	0829.03	38.557571	163.853421	969.2	5.641	32.6	34.8	1.05	5775	3.87	21.74
005358241-03	OBS	0829.02	9.752006	138.781608	412.8	4.712	24.3	26.2	1.05	5775	2.67	135.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005358241-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005358241-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005358241-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

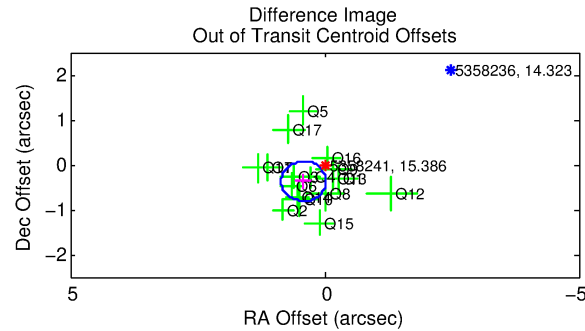
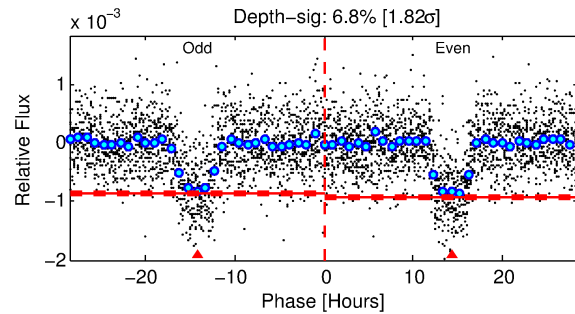
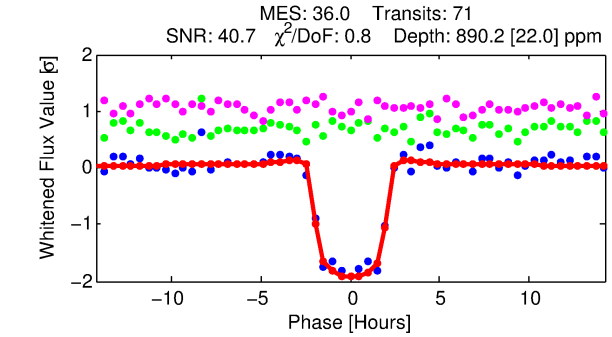
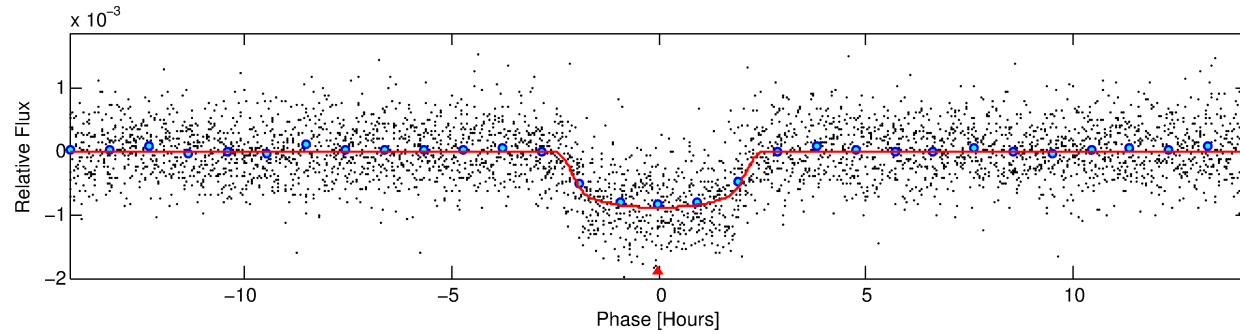
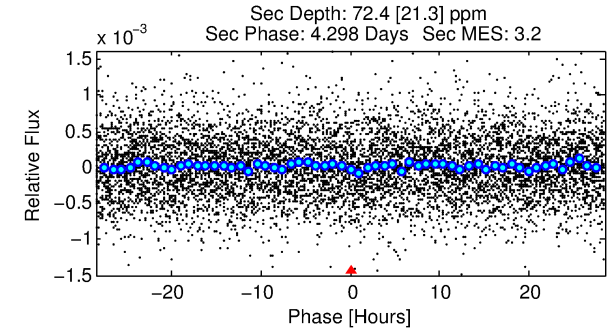
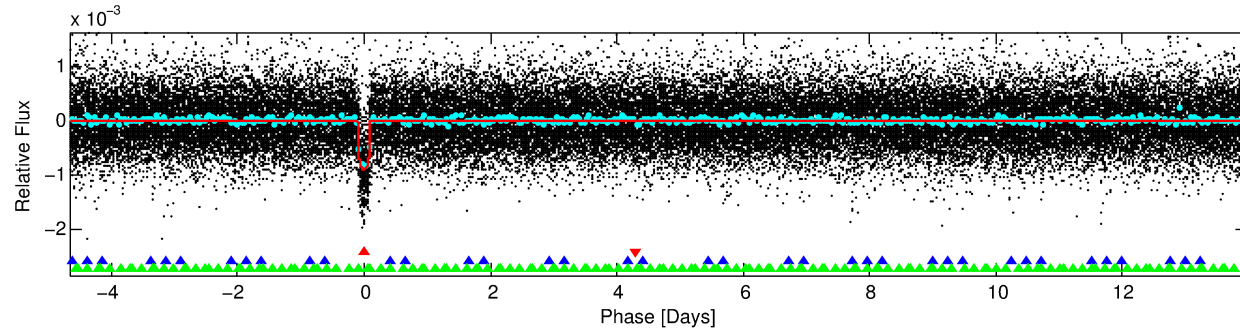
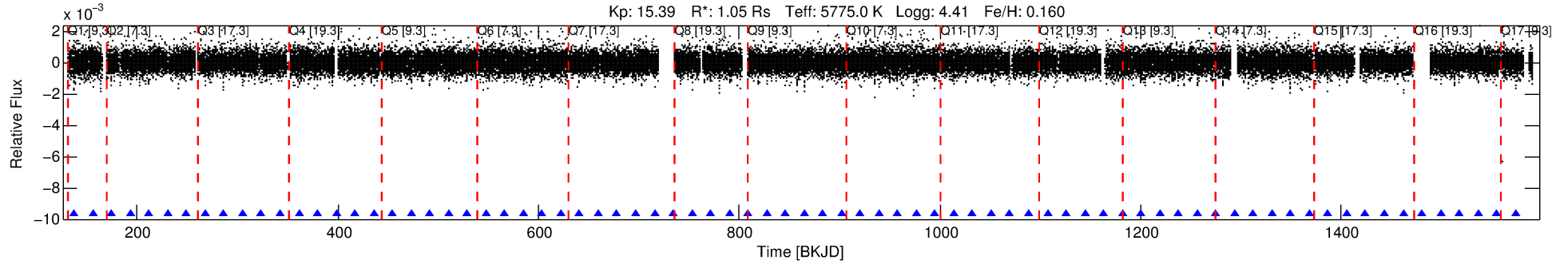
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005358241-01

No Significant Match Found

DV One-Page Summary

KIC: 5358241 Candidate: 1 of 3 Period: 18.649 d
KOI: K00829.01 Name: Kepler-53b Corr: 0.954



DV Fit Results:

Period = 18.64928 [0.00005] d
Epoch = 137.4743 [0.0024] BKJD
Rp/R* = 0.0312 [0.0021]
a/R* = 17.66 [5.06]
b = 0.85 [0.10]
Seff = 57.26 [12.67]
Teq = 701 [39] K
Rp = 3.59 [0.60] Re
a = 0.1389 [0.0193] AU
Ag = 59.64 [23.14] [2.53σ]
Teffp = 3014 [247] K [9.25σ]

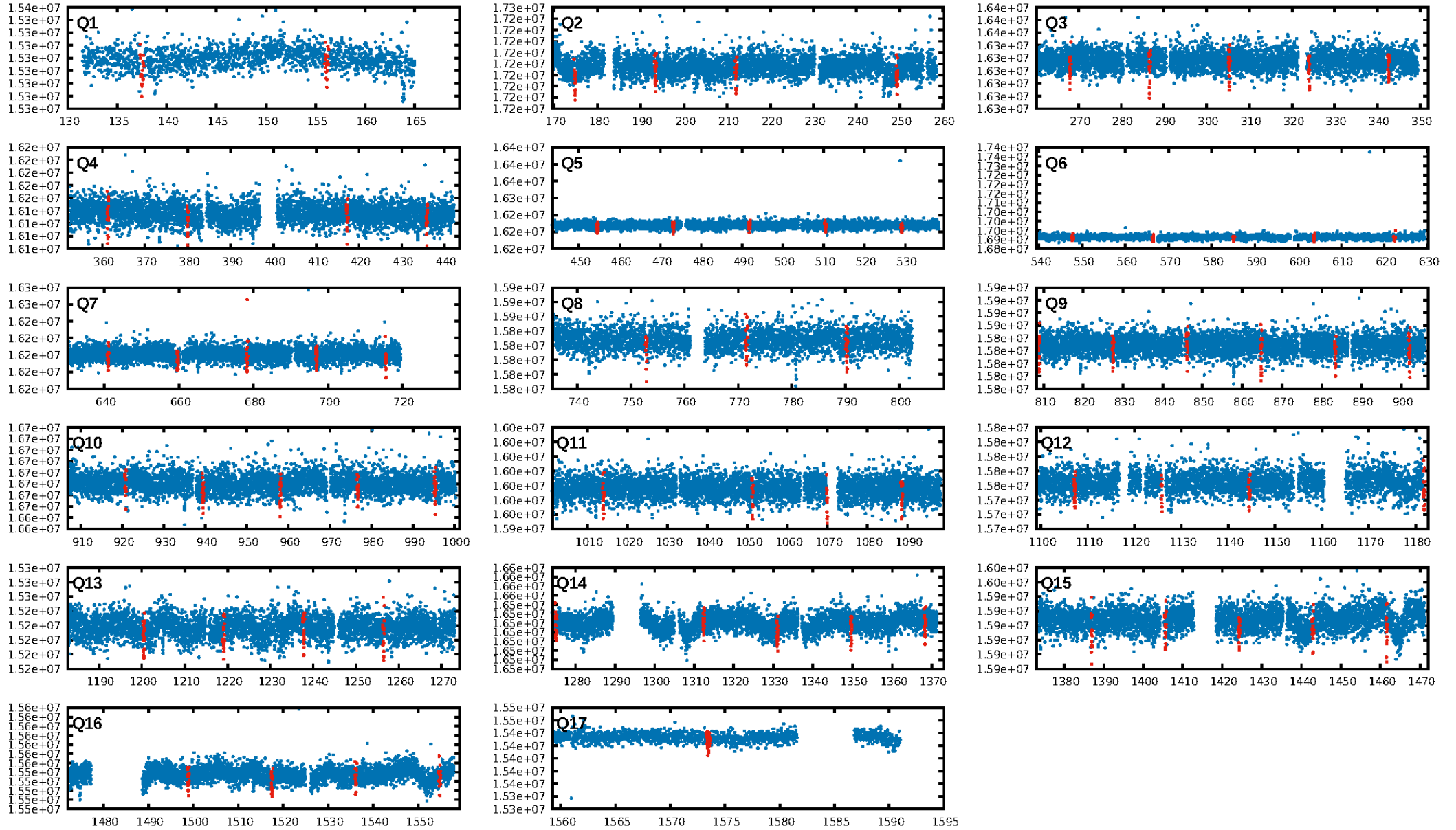
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [31.94σ]
LongPeriod-sig: 100.0% [64.83σ]
ModelChiSquare2-sig: 99.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.08e-272
RollingBand-fgt: 1.00 [68/68]
GhostDiagnostic-chr: 6.31
Centroid-sig: 0.0%
Centroid-so: 0.230 arcsec [0.86σ]
OotOffset-rm: 0.556 arcsec [3.76σ]
KicOffset-rm: 0.171 arcsec [0.97σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

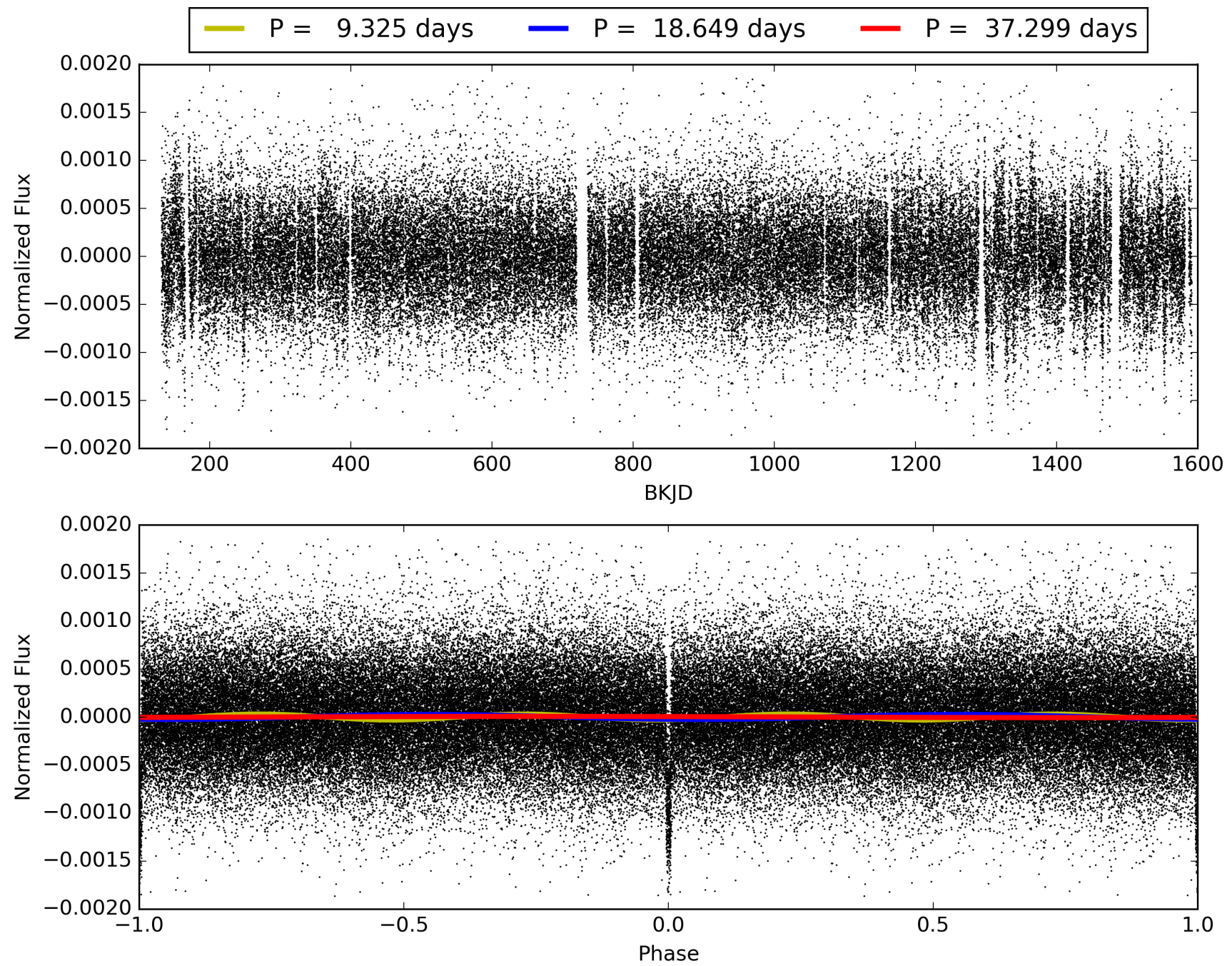
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:34:58 Z

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

TCE 005358241-01, PDC Light Curves

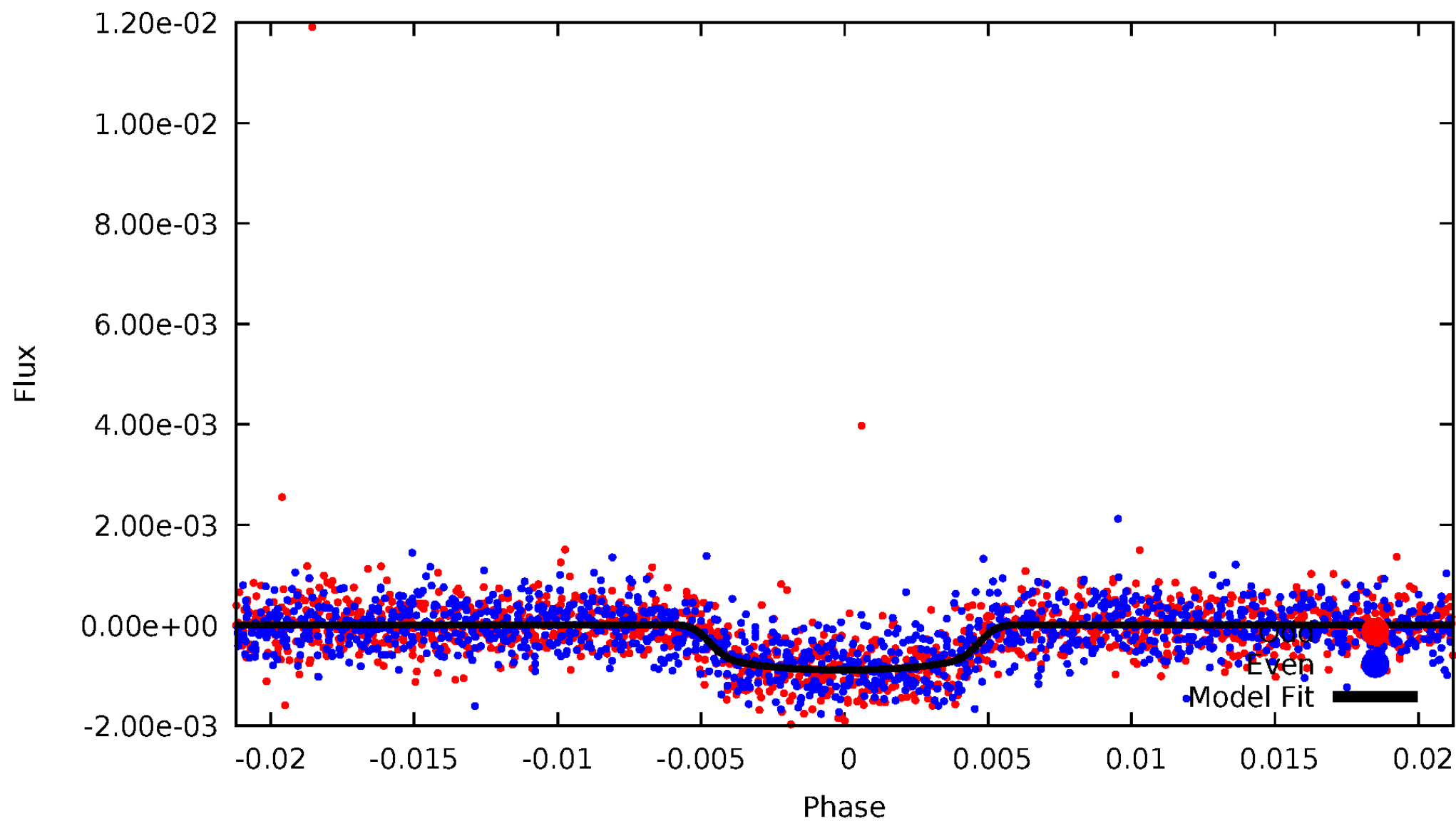


TCE 005358241-01



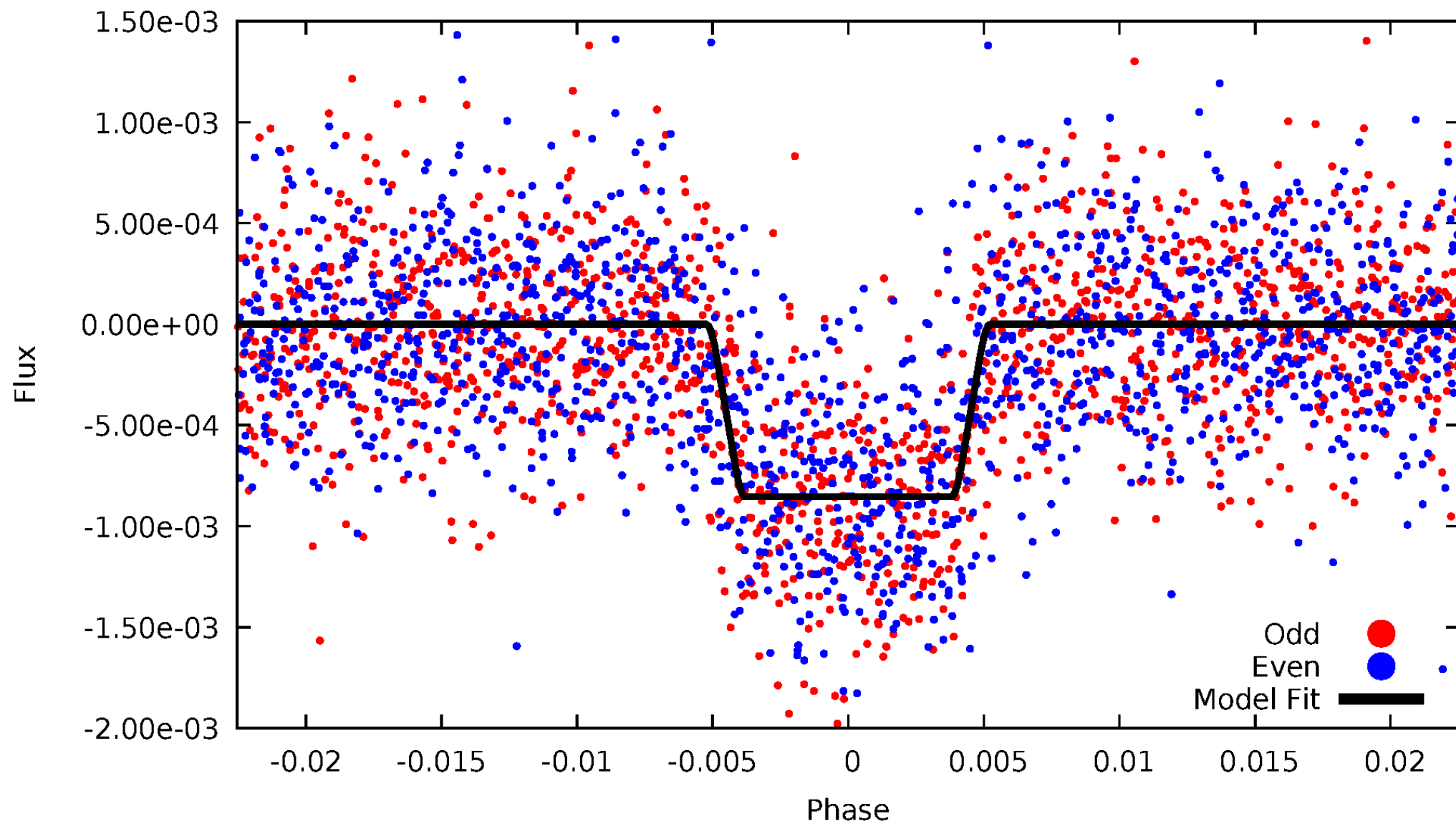
DV Odd/Even

TCE 005358241-01



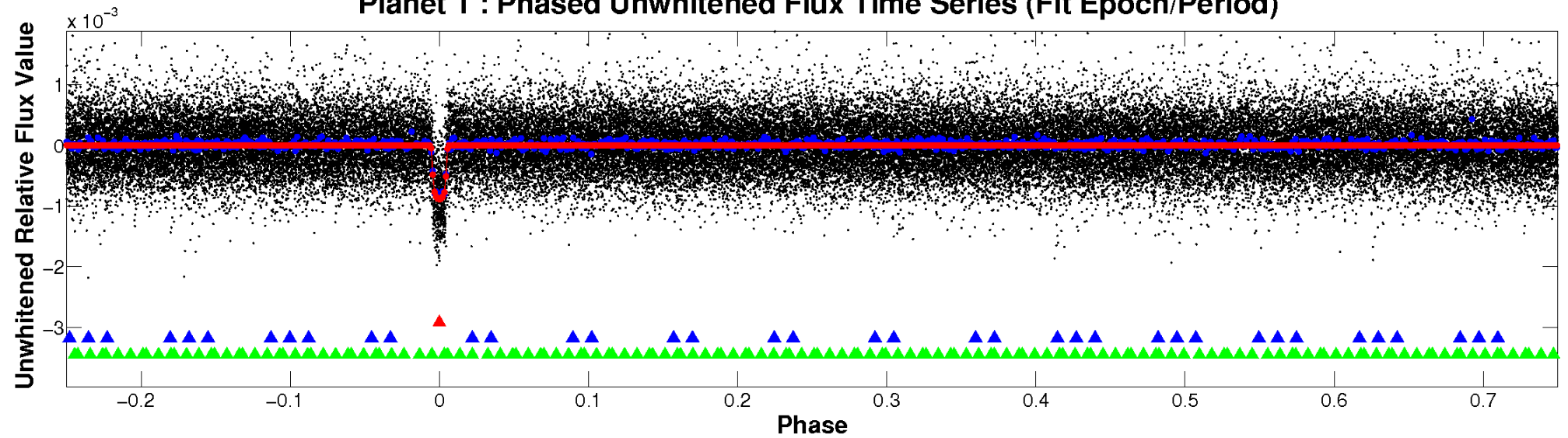
ALT Odd/Even

TCE 005358241-01

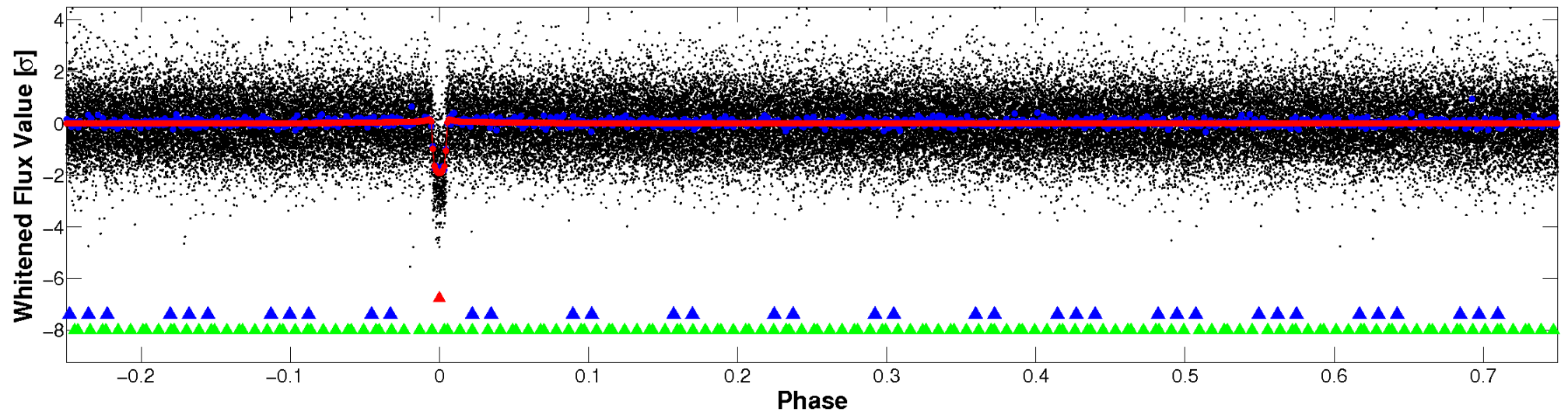


Non-Whitened Vs. Whitened Light Curve

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

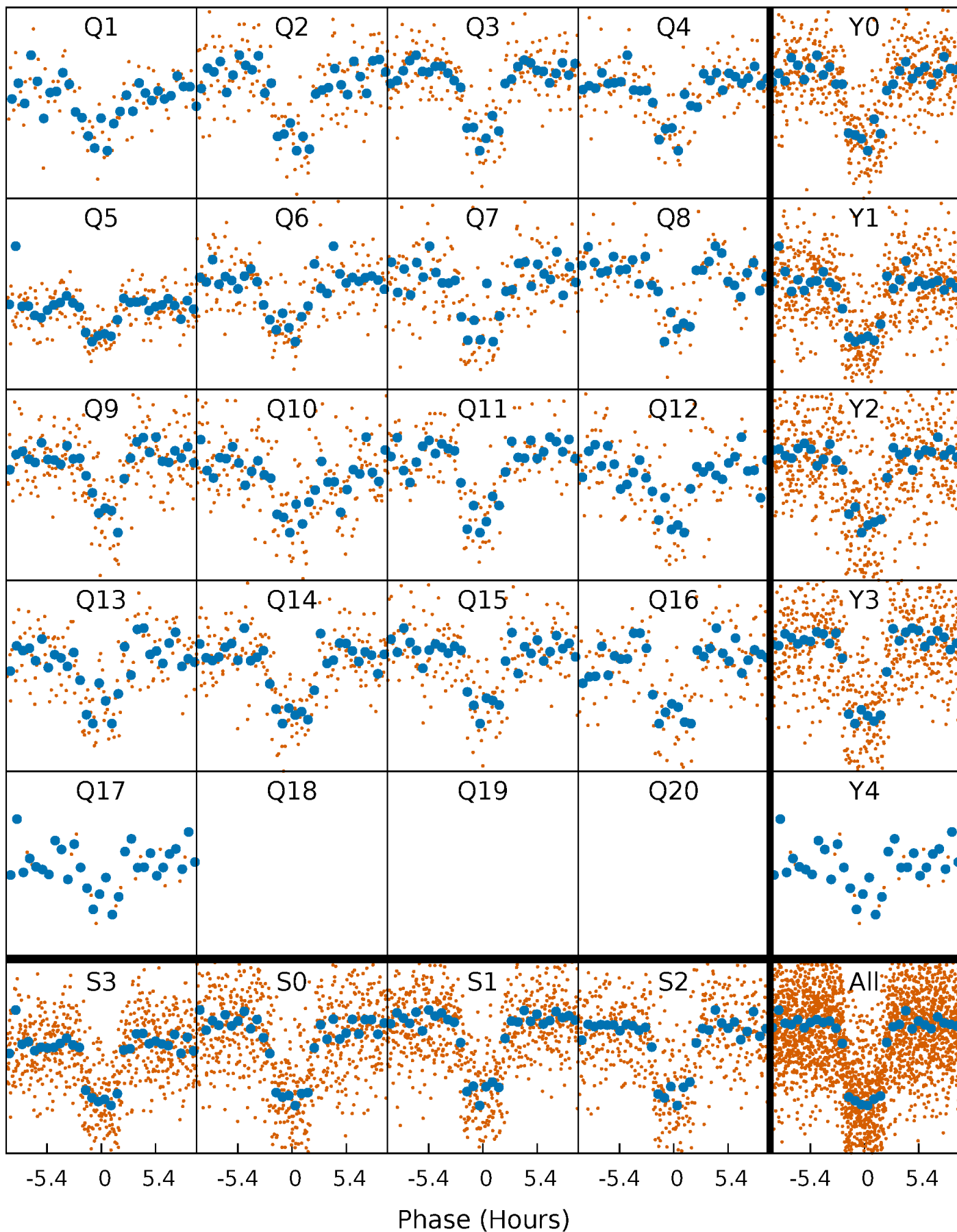


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



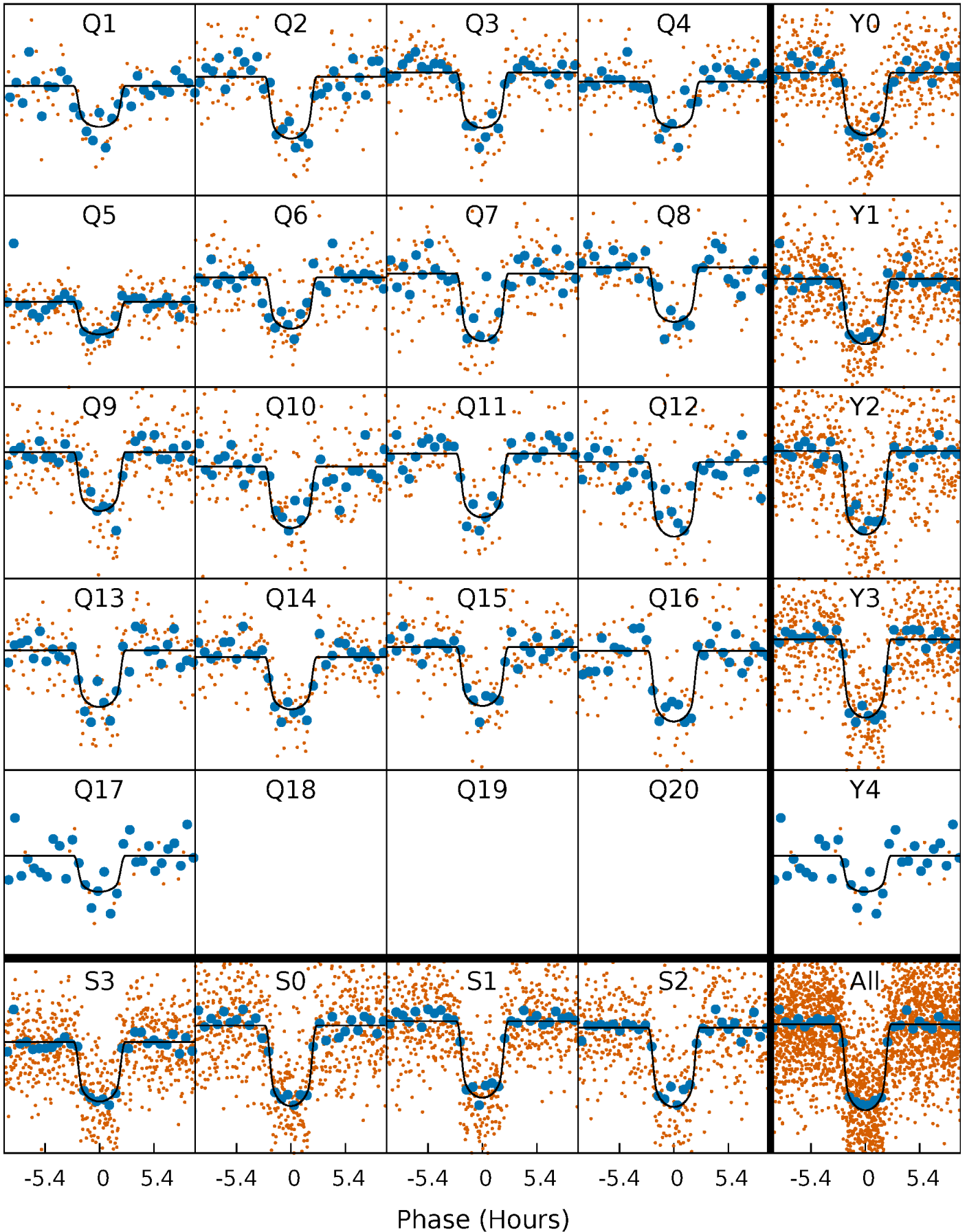
PDC Quarter-Phased Transit Curves

TCE 005358241-01 P= 18.649285 Days $T_0=137.474328$ (BKJD)



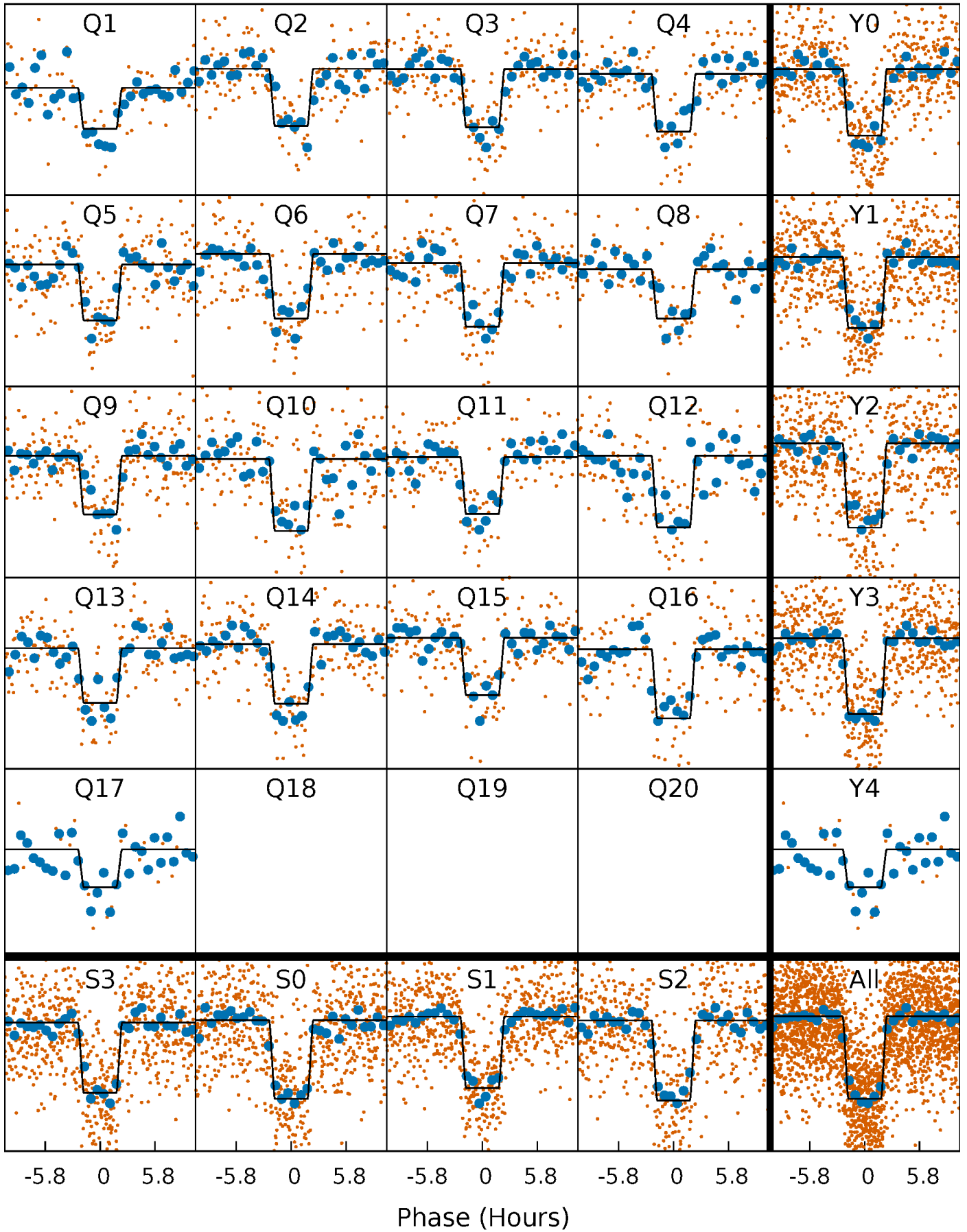
DV Quarter-Phased Transit Curves

TCE 005358241-01 P= 18.649285 Days $T_0=137.474328$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

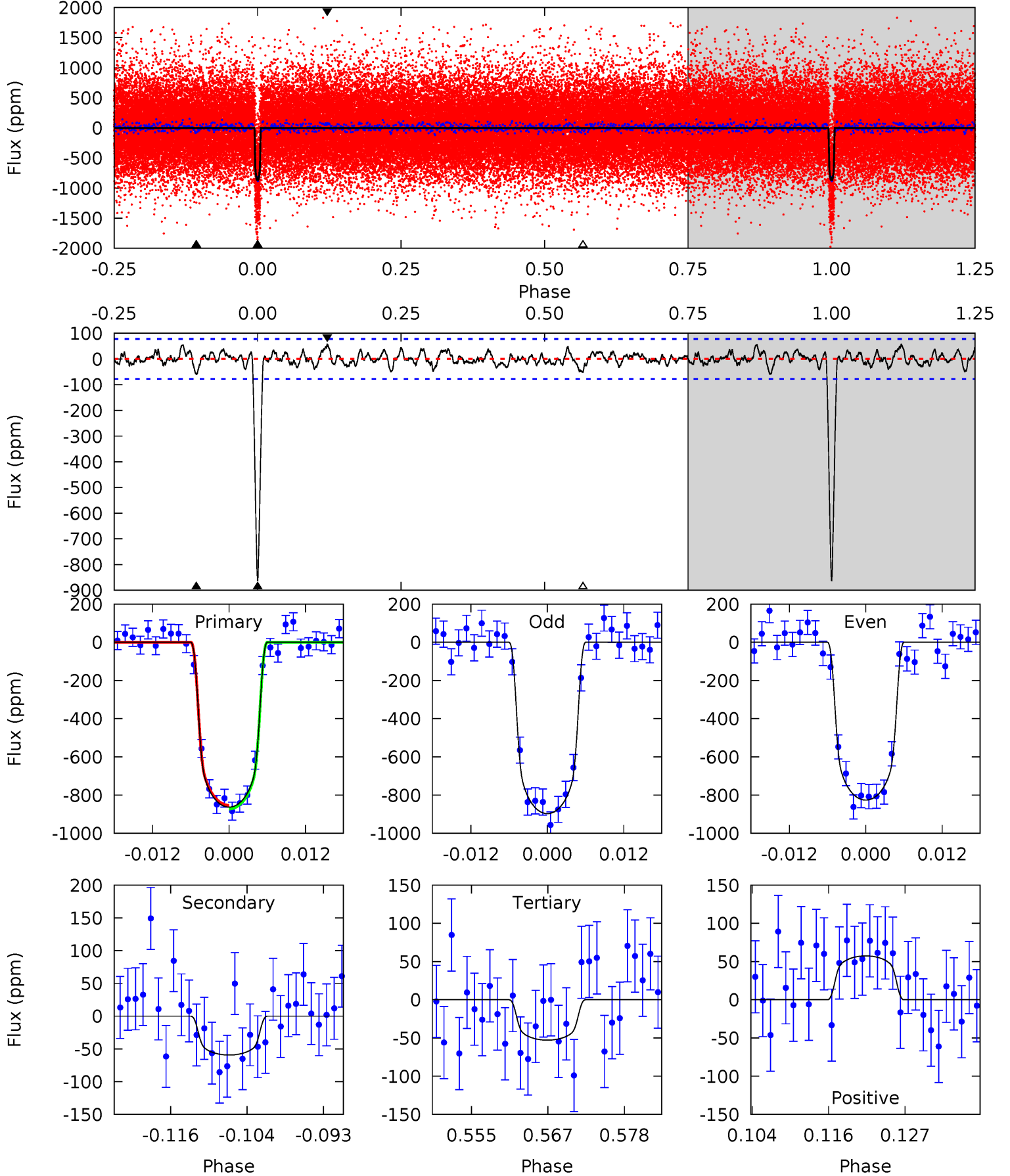
TCE 005358241-01 P= 18.649561 Days $T_0=137.462417$ (BKJD)



DV Model-Shift Uniqueness Test

005358241-01, $P = 18.649285$ Days, $E = 118.825043$ Days

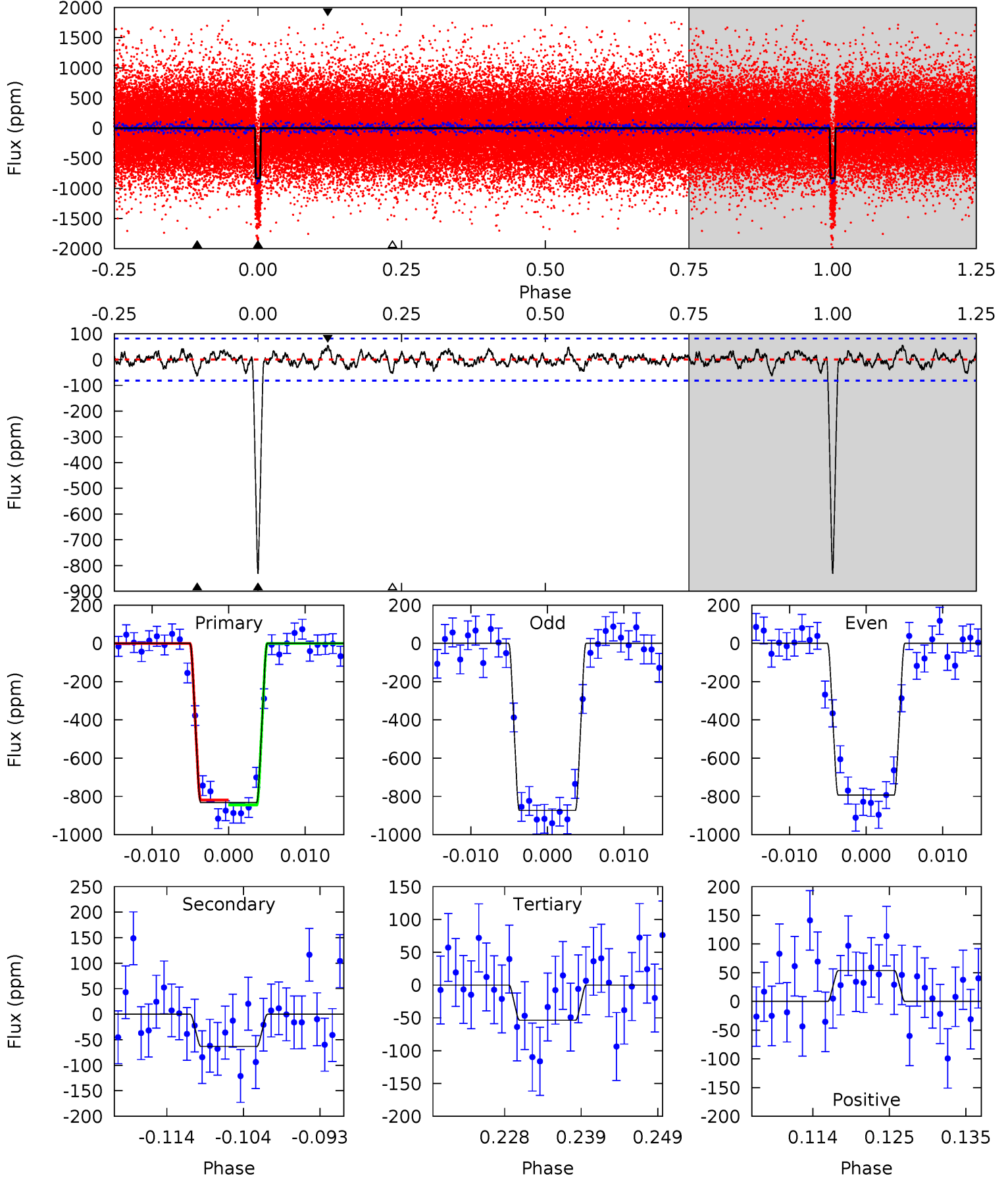
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
55.6	3.82	3.40	3.70	5.00	2.53	1.22	52.2	51.9	0.42	0.12	2.29	0.98	0.06	0.60



Alt Model-Shift Uniqueness Test

005358241-01, $P = 18.649561$ Days, $E = 118.812856$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.0	3.87	3.29	3.30	5.02	2.56	1.08	47.7	47.7	0.58	0.56	2.46	0.99	0.06	0.80



Stellar Parameters For KIC 005358241

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5775^{+78}_{-78}	$4.405^{+0.066}_{-0.123}$	$0.160^{+0.150}_{-0.150}$	$1.053^{+0.161}_{-0.094}$	$1.026^{+0.062}_{-0.062}$	$1.237^{+0.328}_{-0.439}$
	+1%/-1%	+1%/-3%	+94%/-94%	+15%/-9%	+6%/-6%	+27%/-35%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 005358241-01 / KOI 0829.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-59 ± 16	$3.61^{+0.44}_{-0.33}$	985^{+43}_{-27}	3381^{+169}_{-170}	47^{+17}_{-14}
Alt.	-63 ± 16	$3.39^{+0.36}_{-0.30}$	985^{+41}_{-30}	3482^{+168}_{-166}	56^{+20}_{-17}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

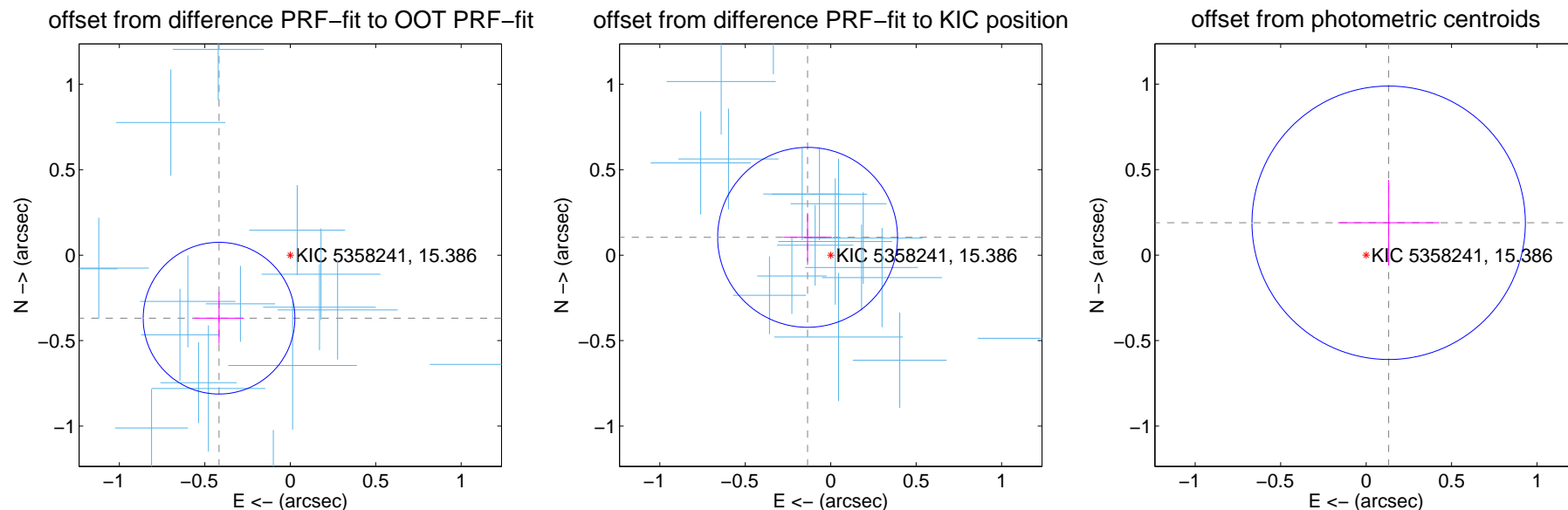
DV Centroid Data

Supplemental centroid analysis for 005358241-01. Kepler magnitude: 15.39. Transit SNR 40.66

There are 17 quarters with good PRF difference image offsets

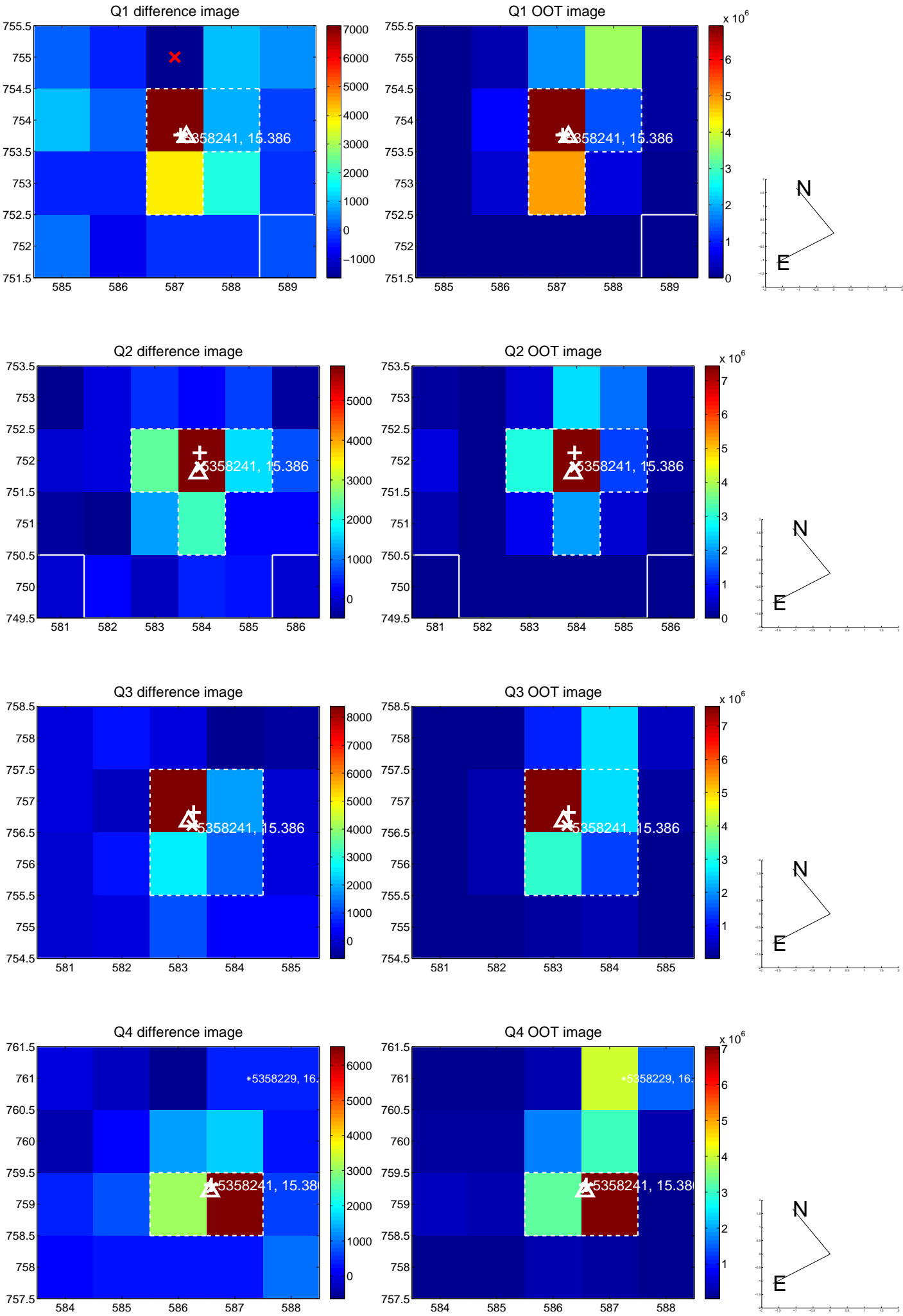
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.556 ± 0.148	3.76	0.417 ± 0.146	-0.369 ± 0.150
PRF-fit source offset from KIC position	0.171 ± 0.175	0.97	0.135 ± 0.141	0.104 ± 0.142
photometric centroid source offset	0.23 ± 0.27	0.86	-0.13 ± 0.30	0.19 ± 0.25

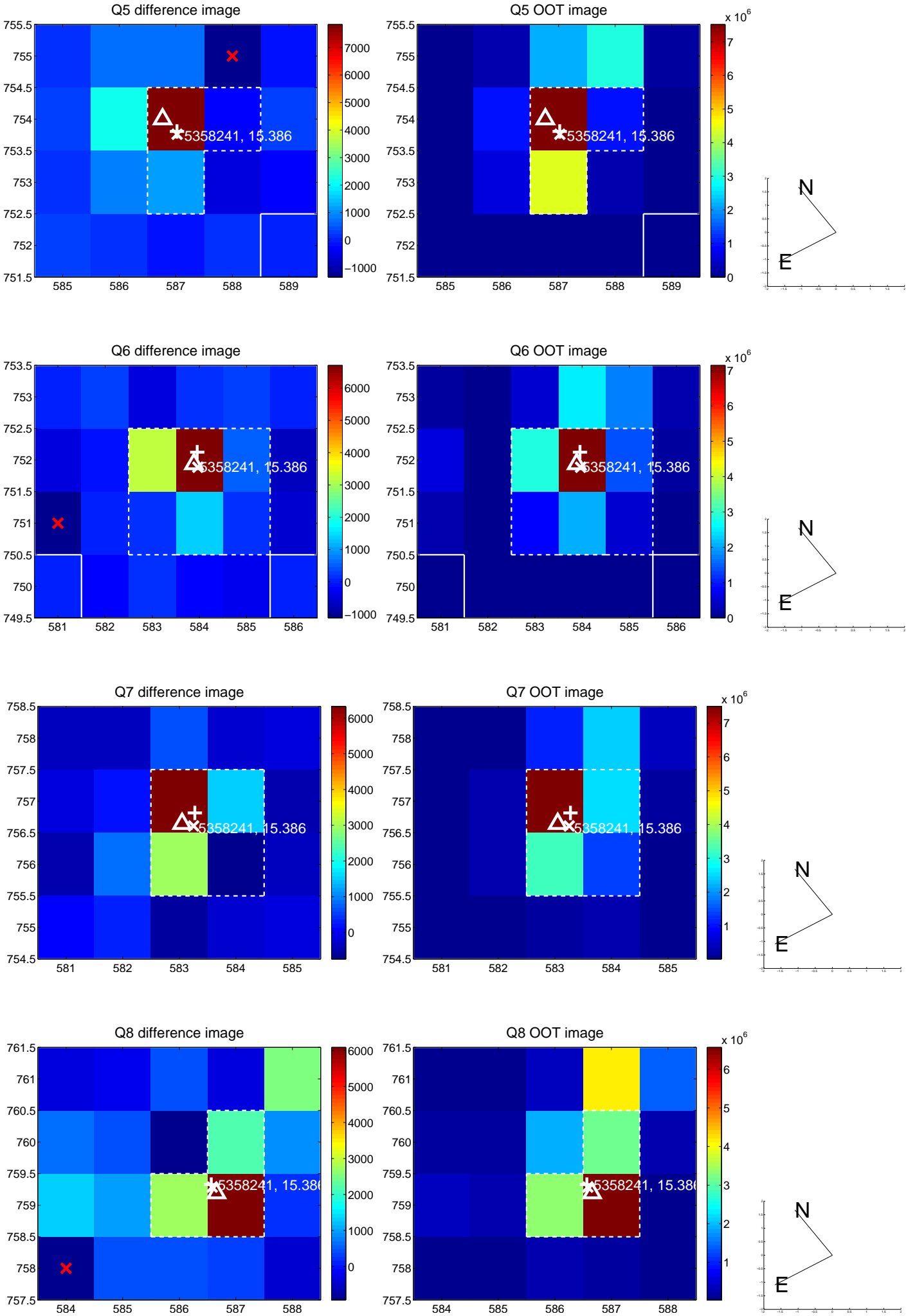


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

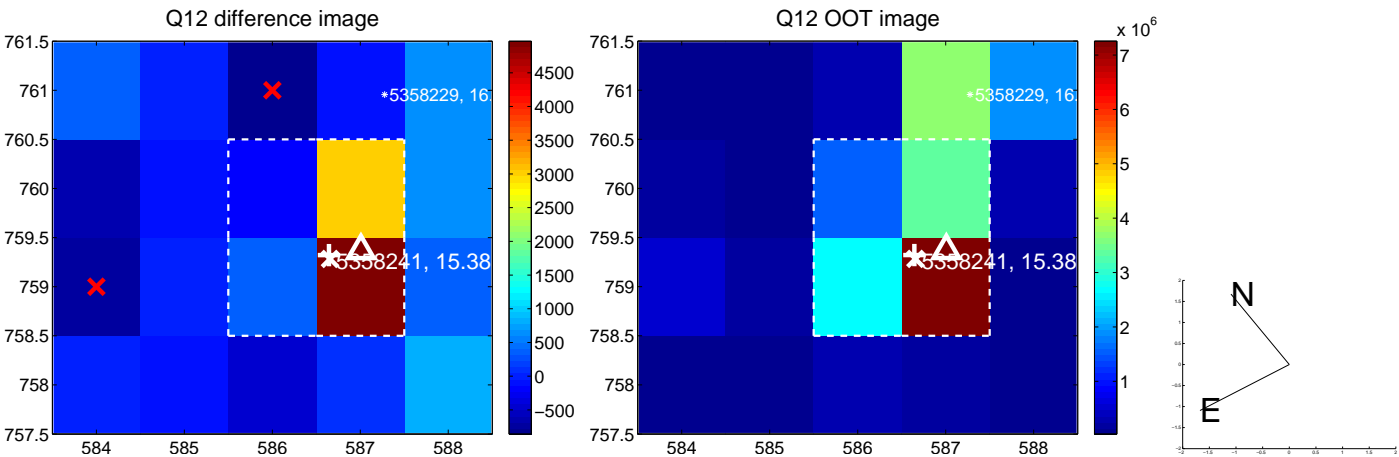
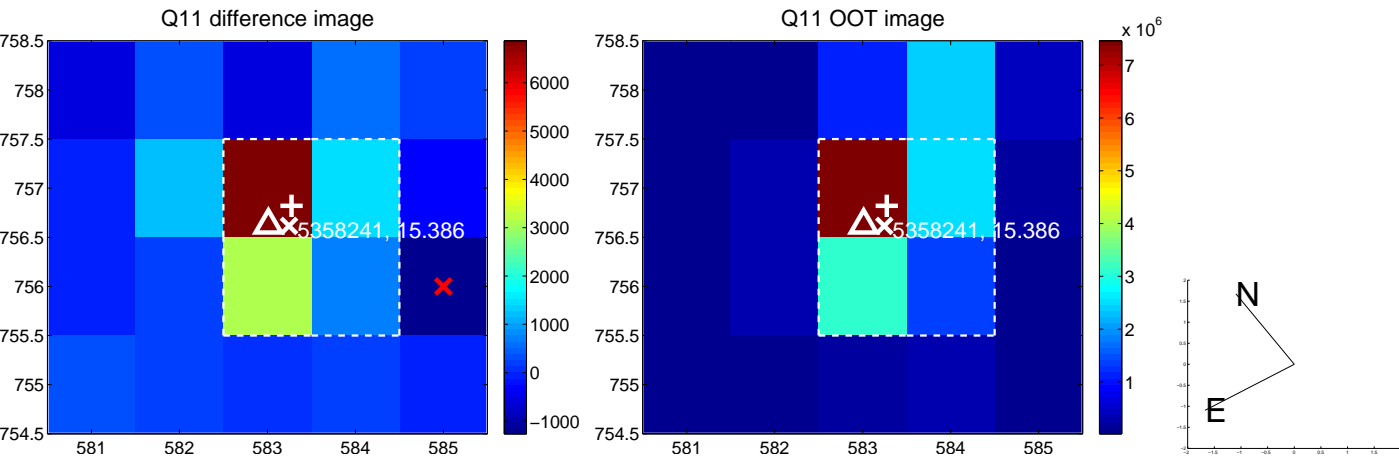
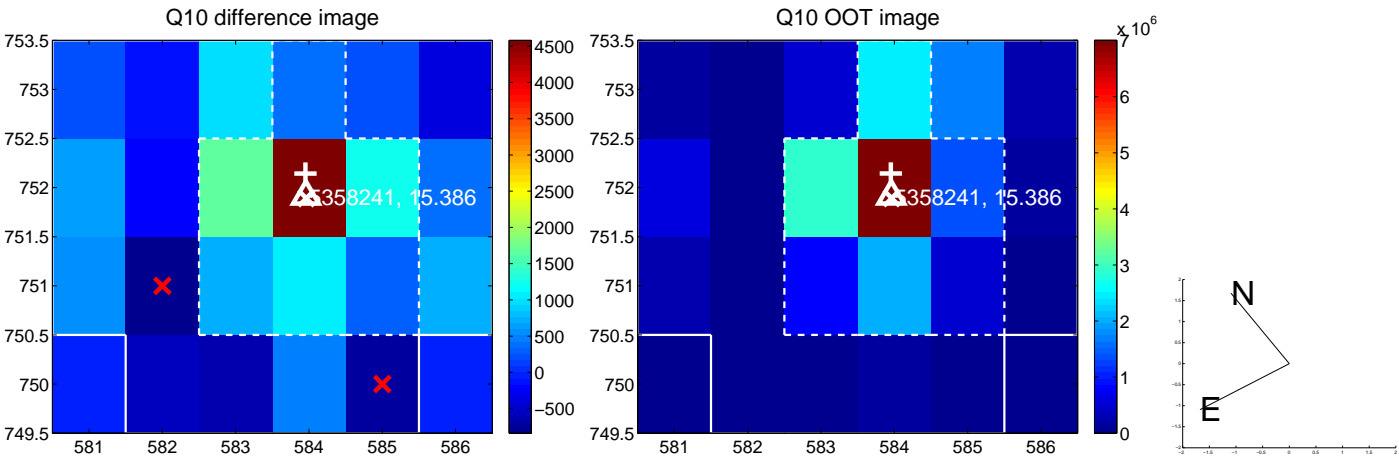
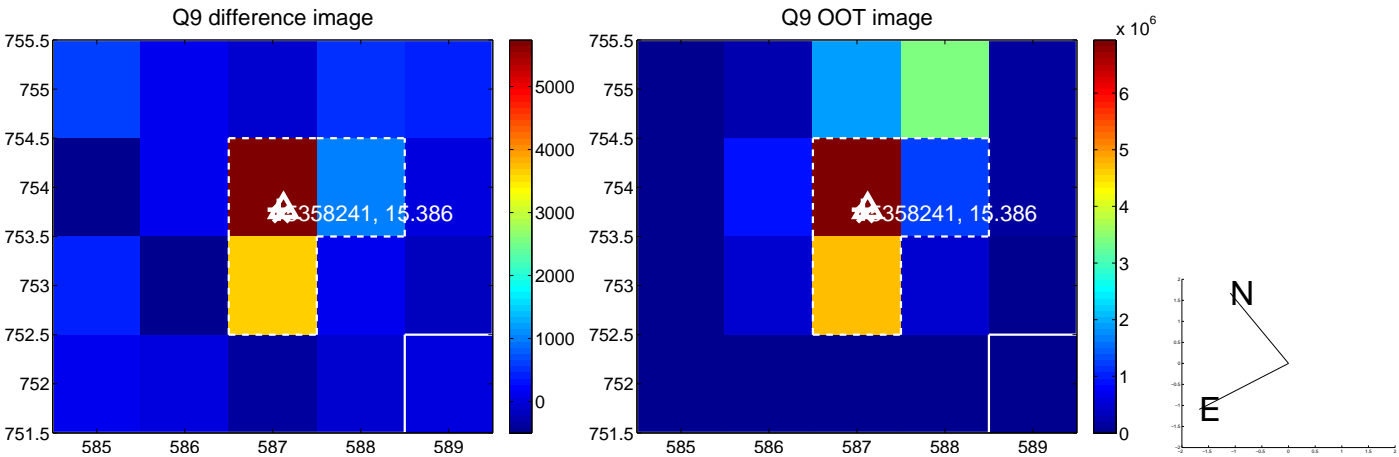
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



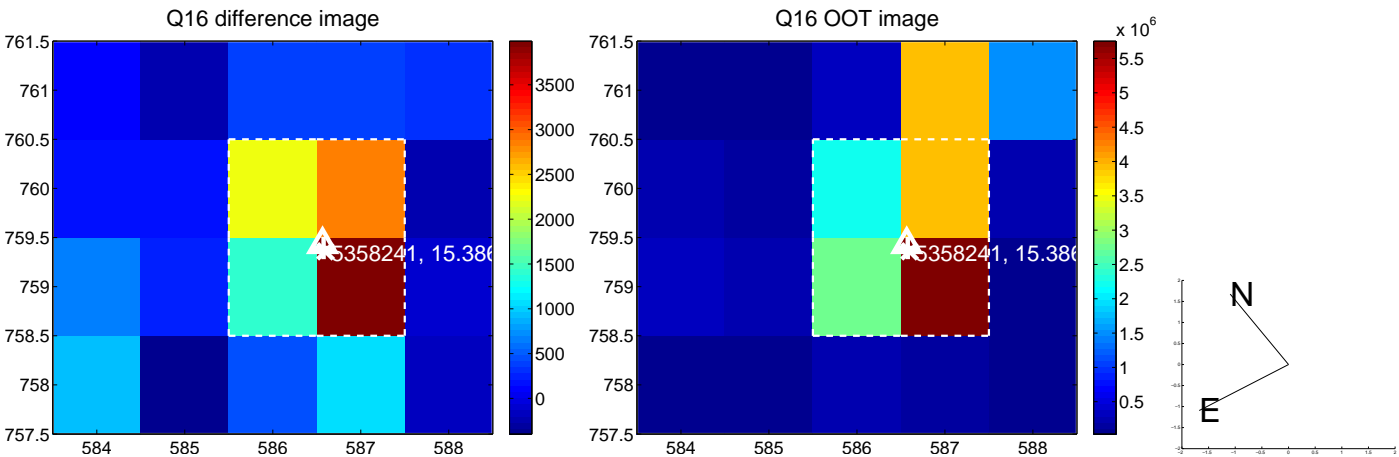
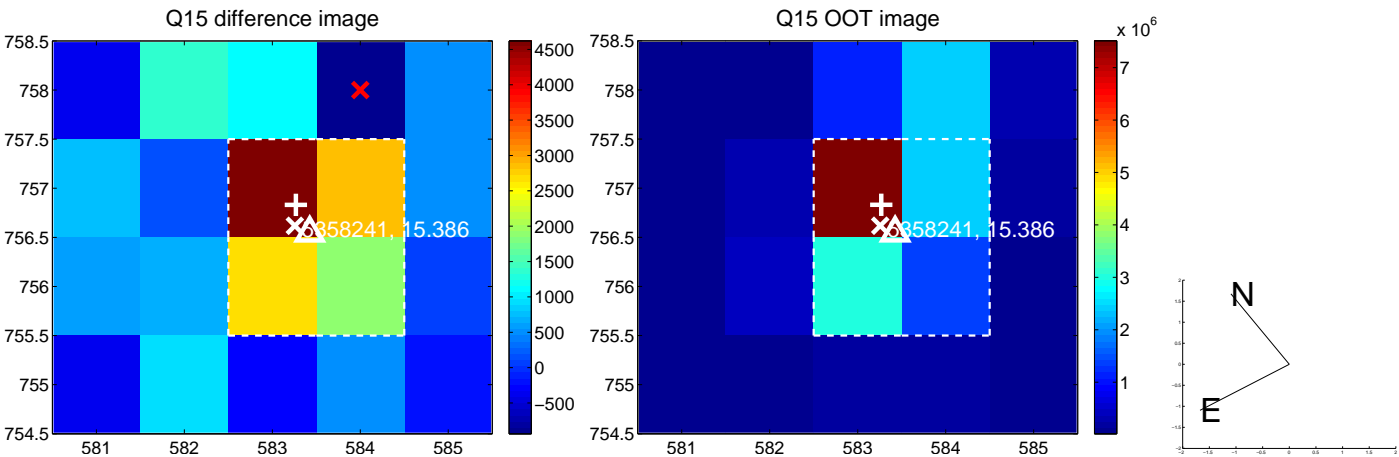
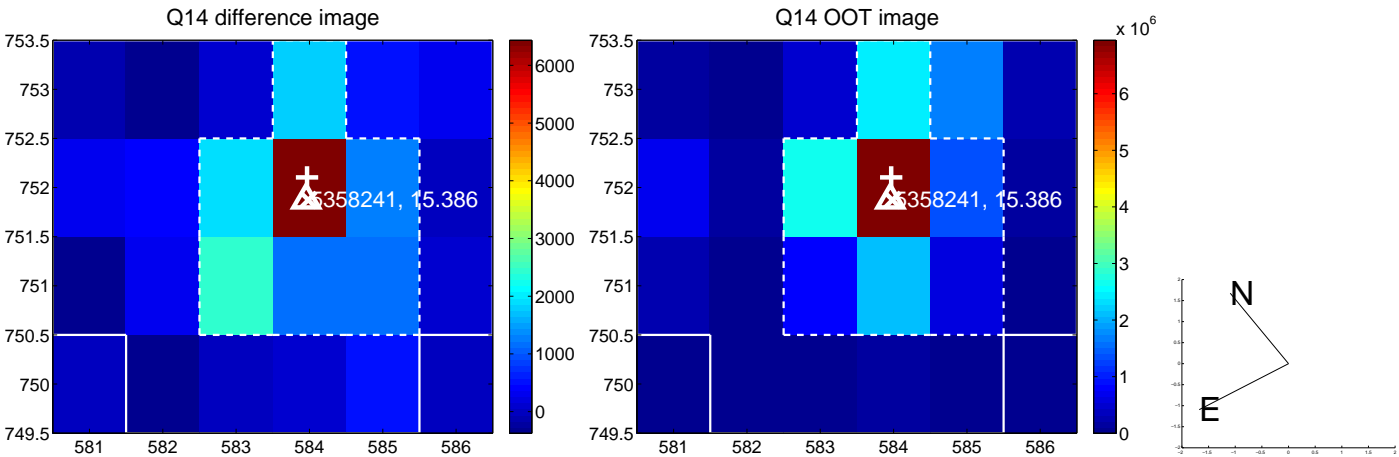
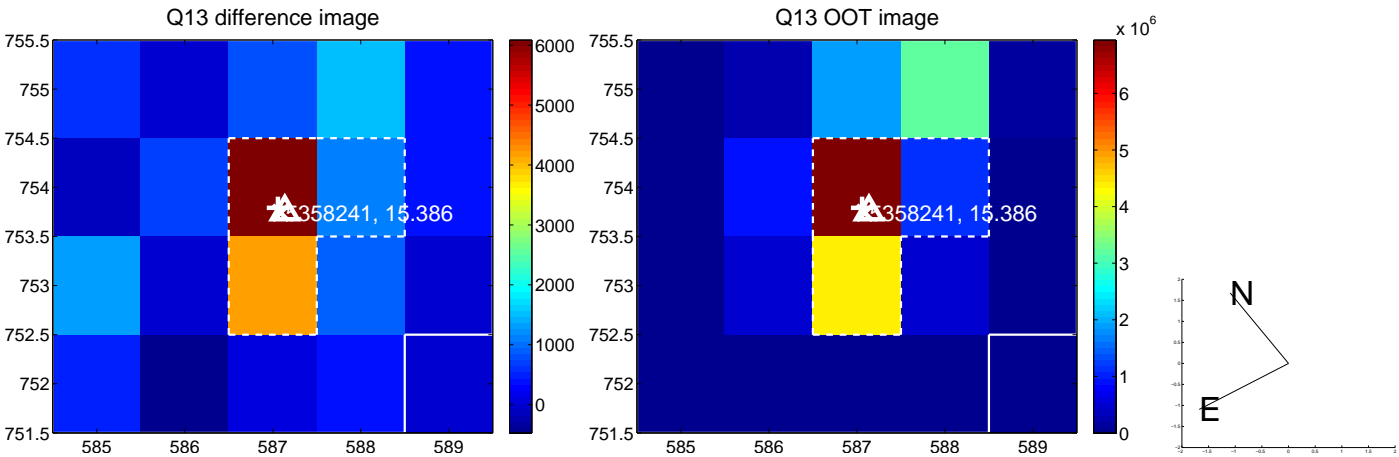
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



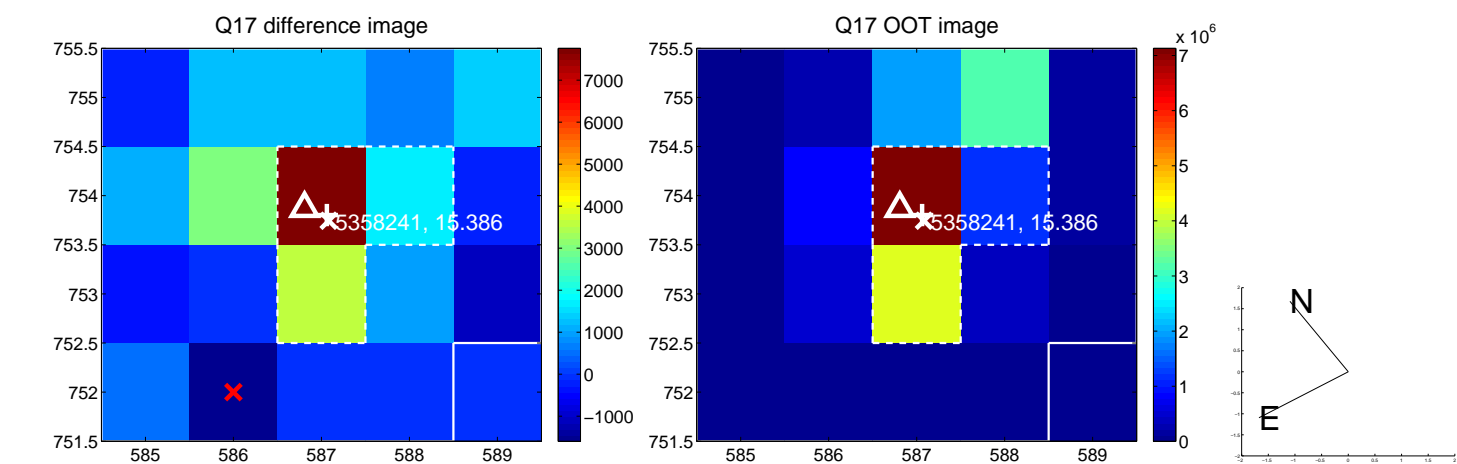
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



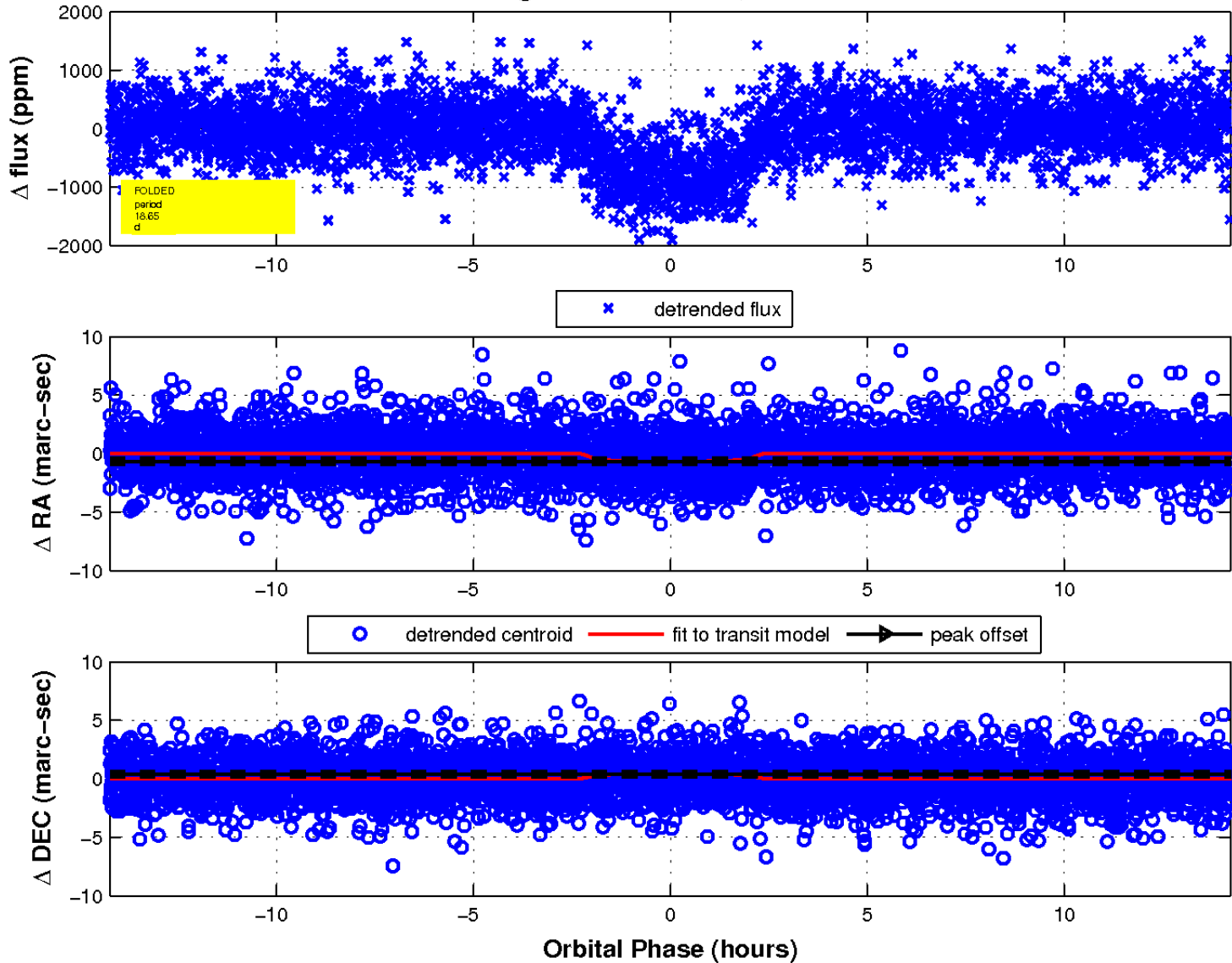
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

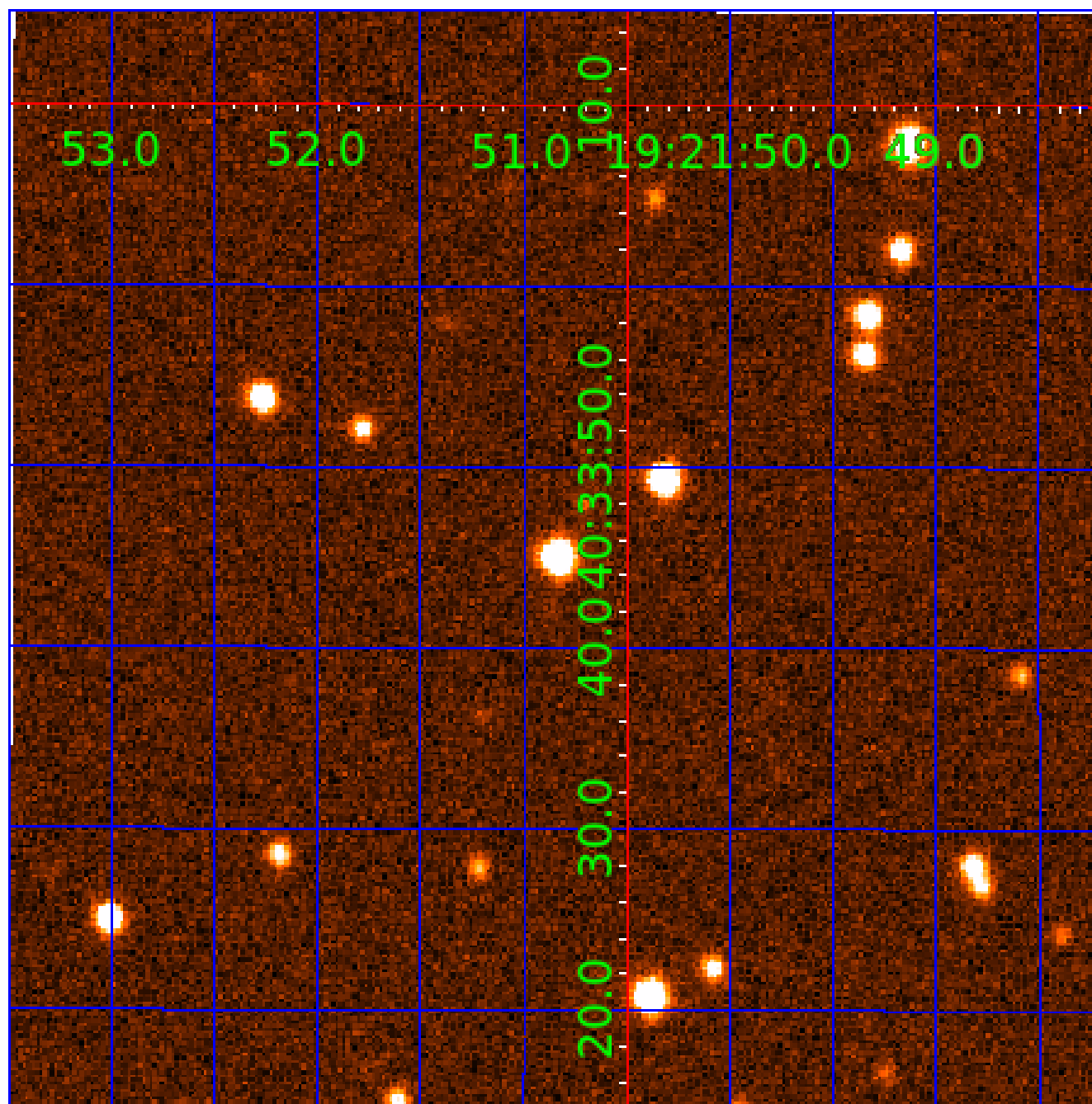


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 005358241

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})
005358241-01	OBS	0829.01	18.649285	137.474328	890.2	4.744	36.0	40.7	1.05	5775	3.59	57.26
005358241-02	OBS	0829.03	38.557571	163.853421	969.2	5.641	32.6	34.8	1.05	5775	3.87	21.74
005358241-03	OBS	0829.02	9.752006	138.781608	412.8	4.712	24.3	26.2	1.05	5775	2.67	135.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005358241-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005358241-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005358241-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

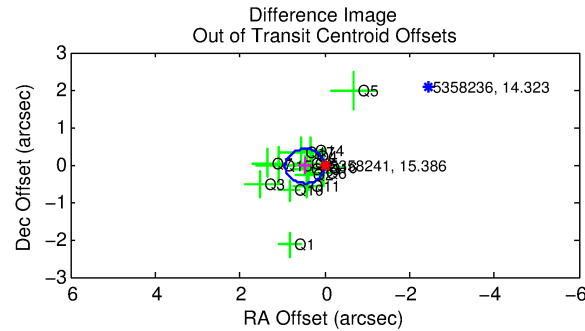
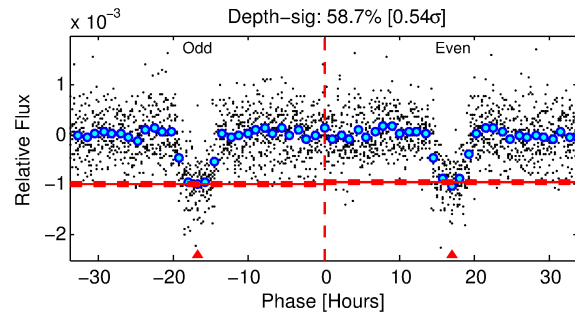
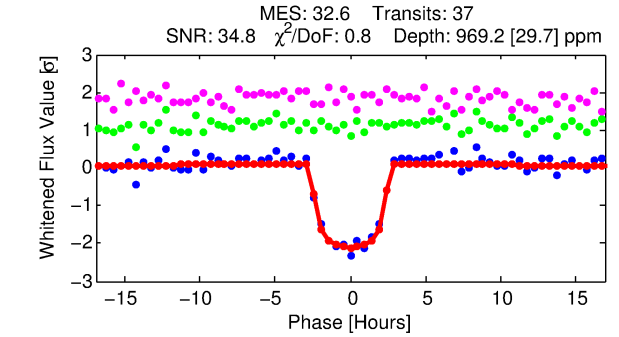
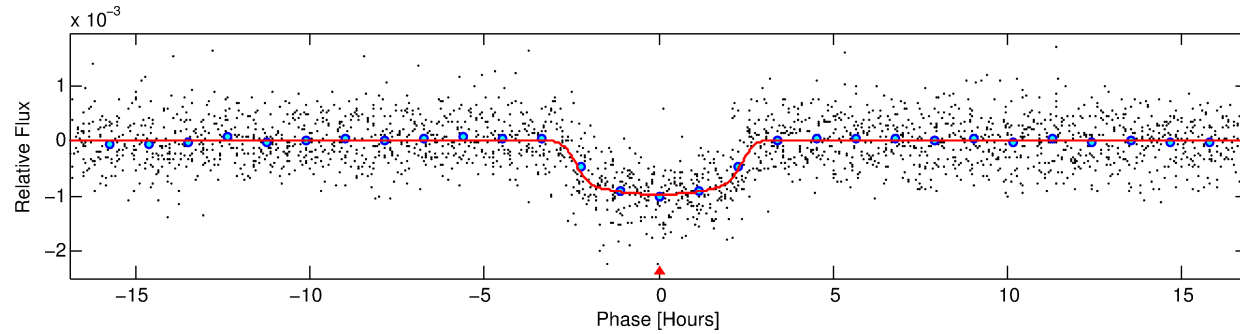
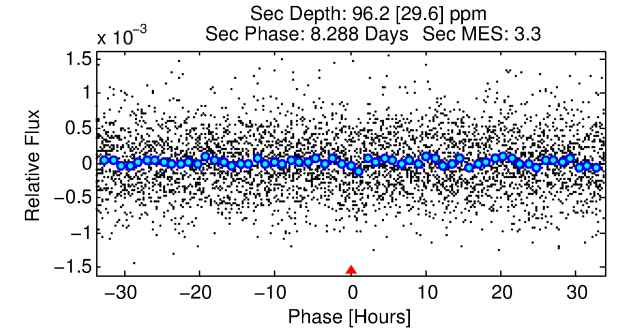
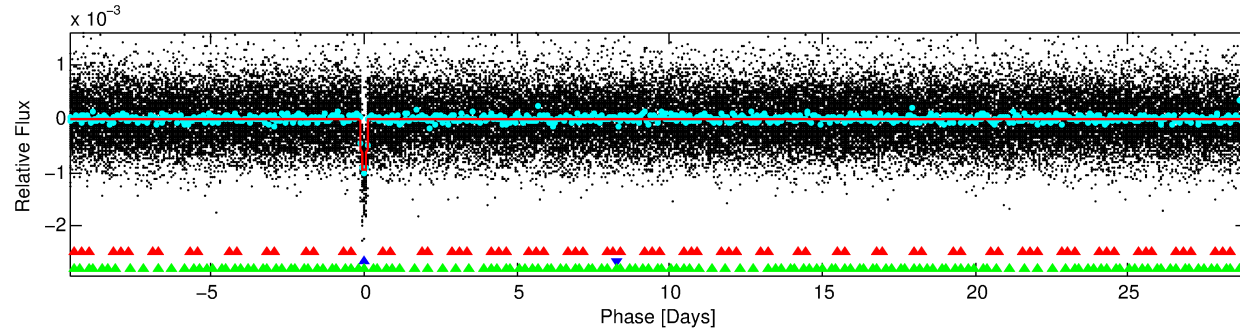
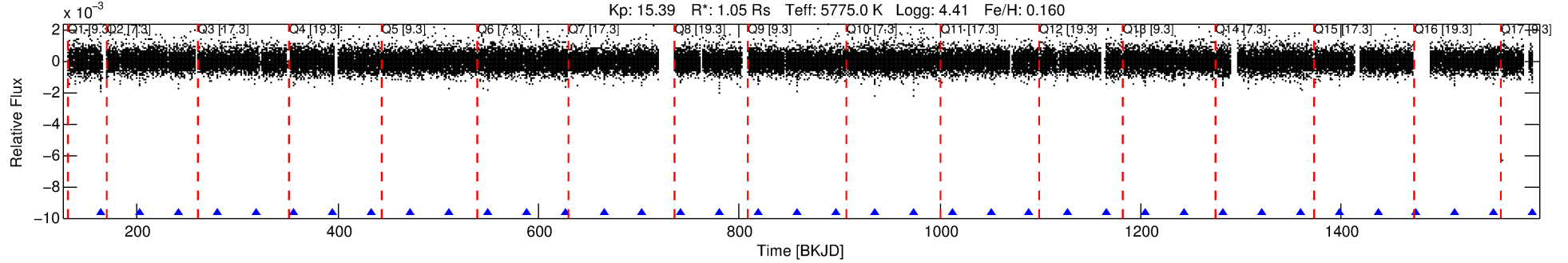
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005358241-02

No Significant Match Found

DV One-Page Summary

KIC: 5358241 Candidate: 2 of 3 Period: 38.558 d
KOI: K00829.03 Name: Kepler-53c Corr: 0.996



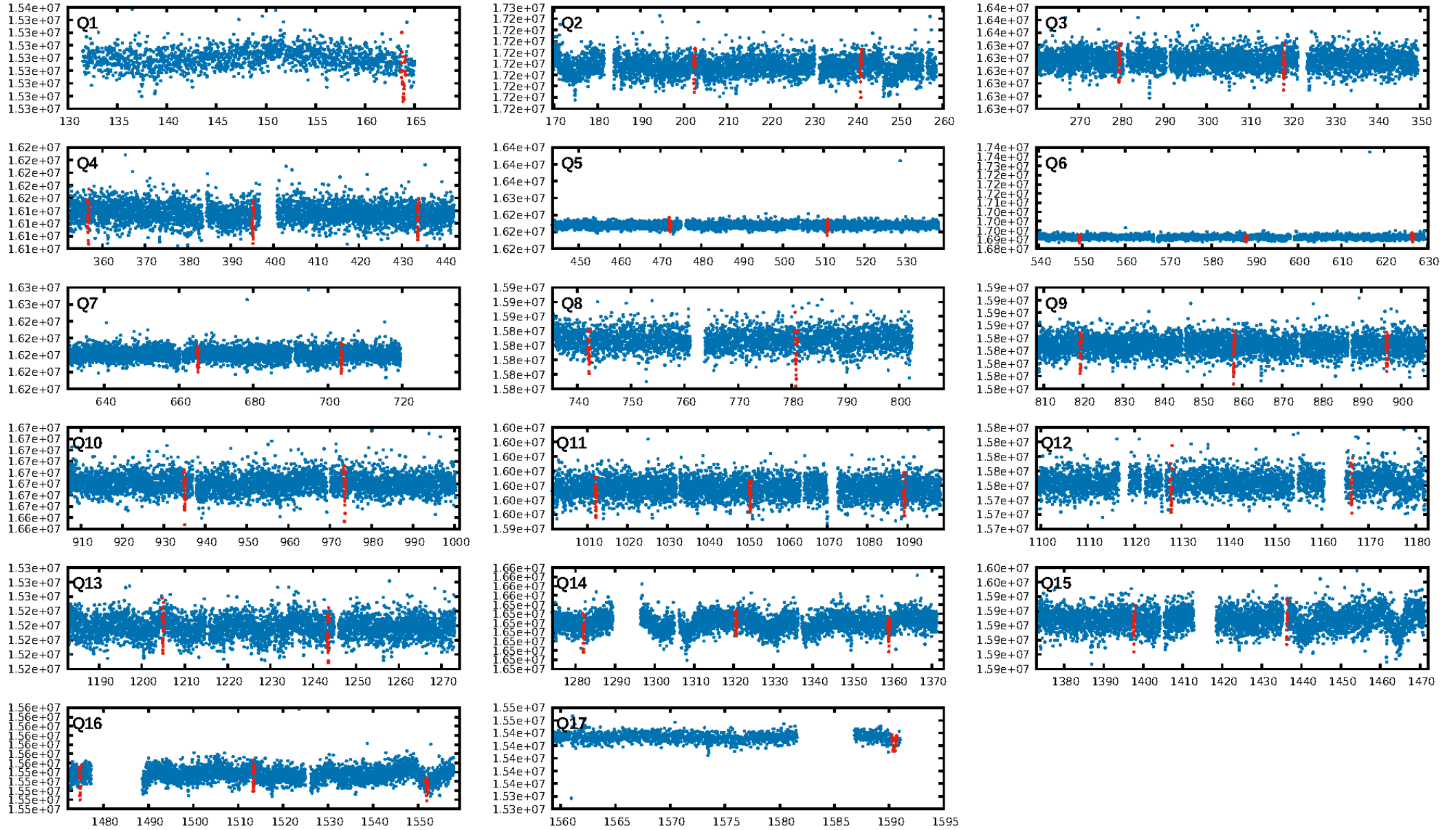
DV Fit Results:

Period = 38.55757 [0.00016] d
Epoch = 163.8534 [0.0035] BKJD
Rp/R* = 0.0337 [0.0015]
a/R* = 27.56 [4.81]
b = 0.89 [0.04]
Seff = 21.74 [4.81]
Teff = 551 [30] K
Rp = 3.87 [0.61] Re
a = 0.2255 [0.0313] AU
Ag = 179.95 [69.30] [2.58σ]
Teffp = 3118 [253] K [10.08σ]

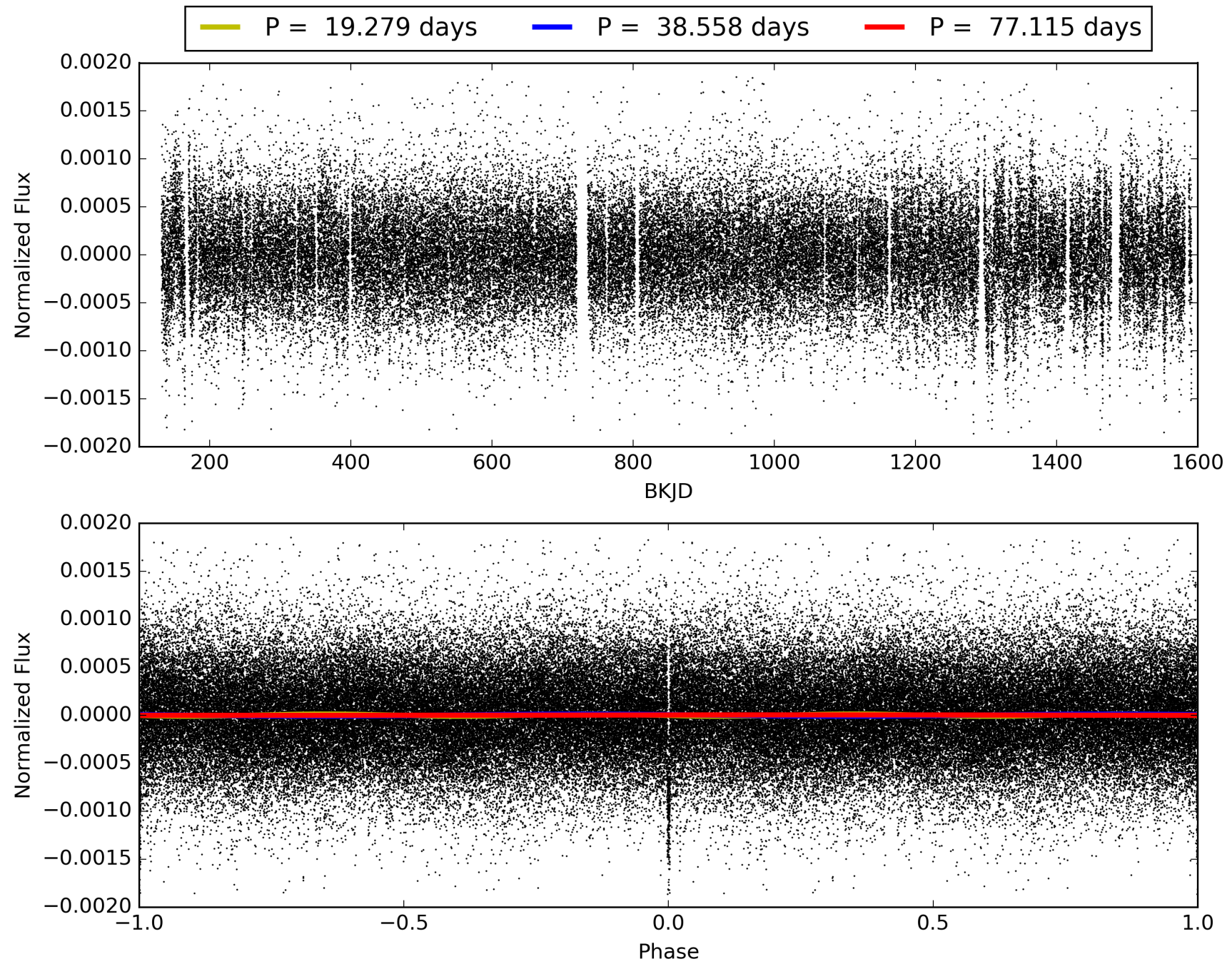
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [64.83σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 94.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.65e-223
RollingBand-fgt: 1.00 [35/35]
GhostDiagnostic-chr: 3.773
Centroid-sig: 0.0%
Centroid-so: 0.160 arcsec [0.46σ]
OotOffset-rm: 0.471 arcsec [3.06σ]
KicOffset-rm: 0.406 arcsec [2.79σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

TCE 005358241-02, PDC Light Curves

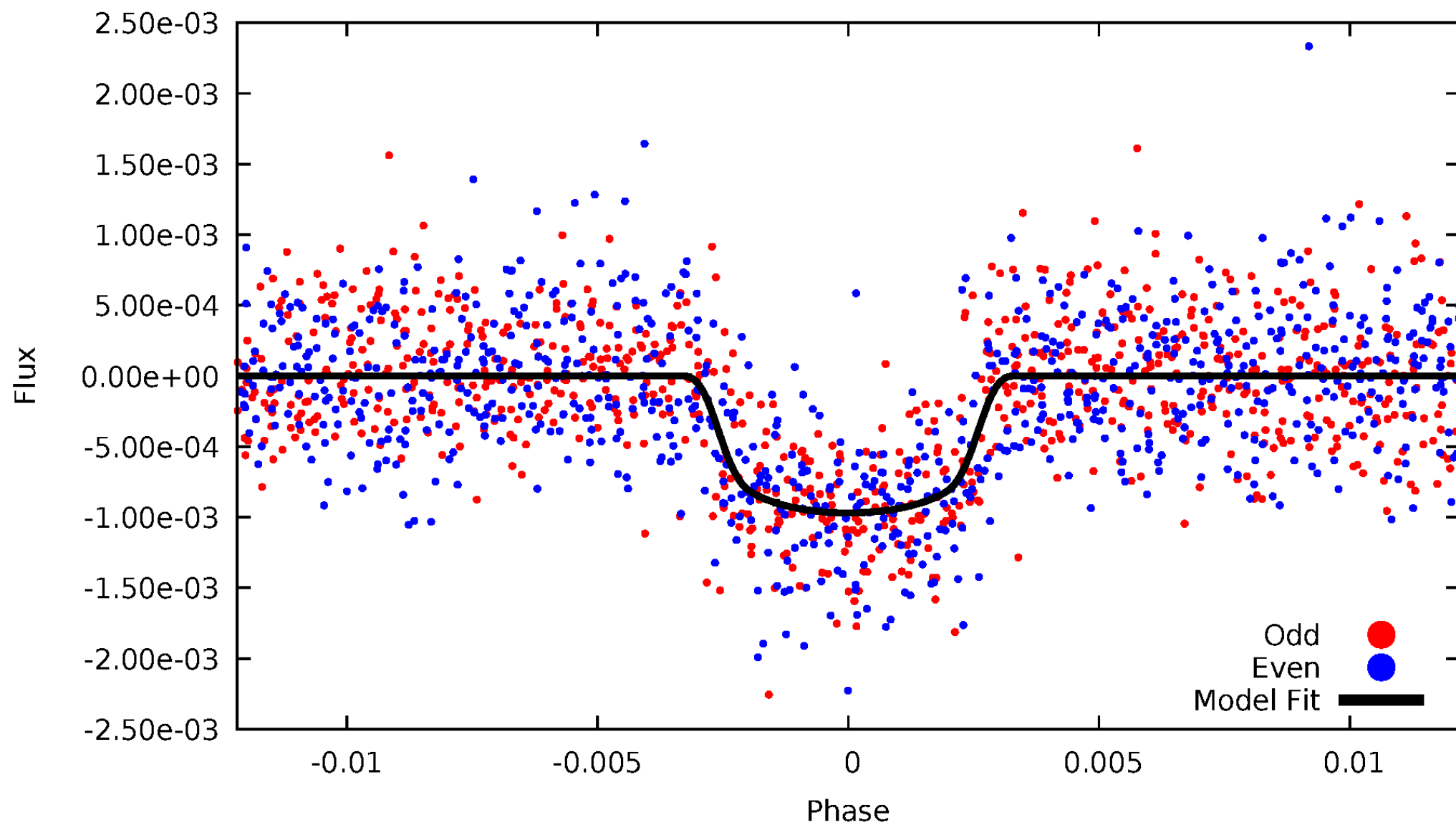


TCE 005358241-02



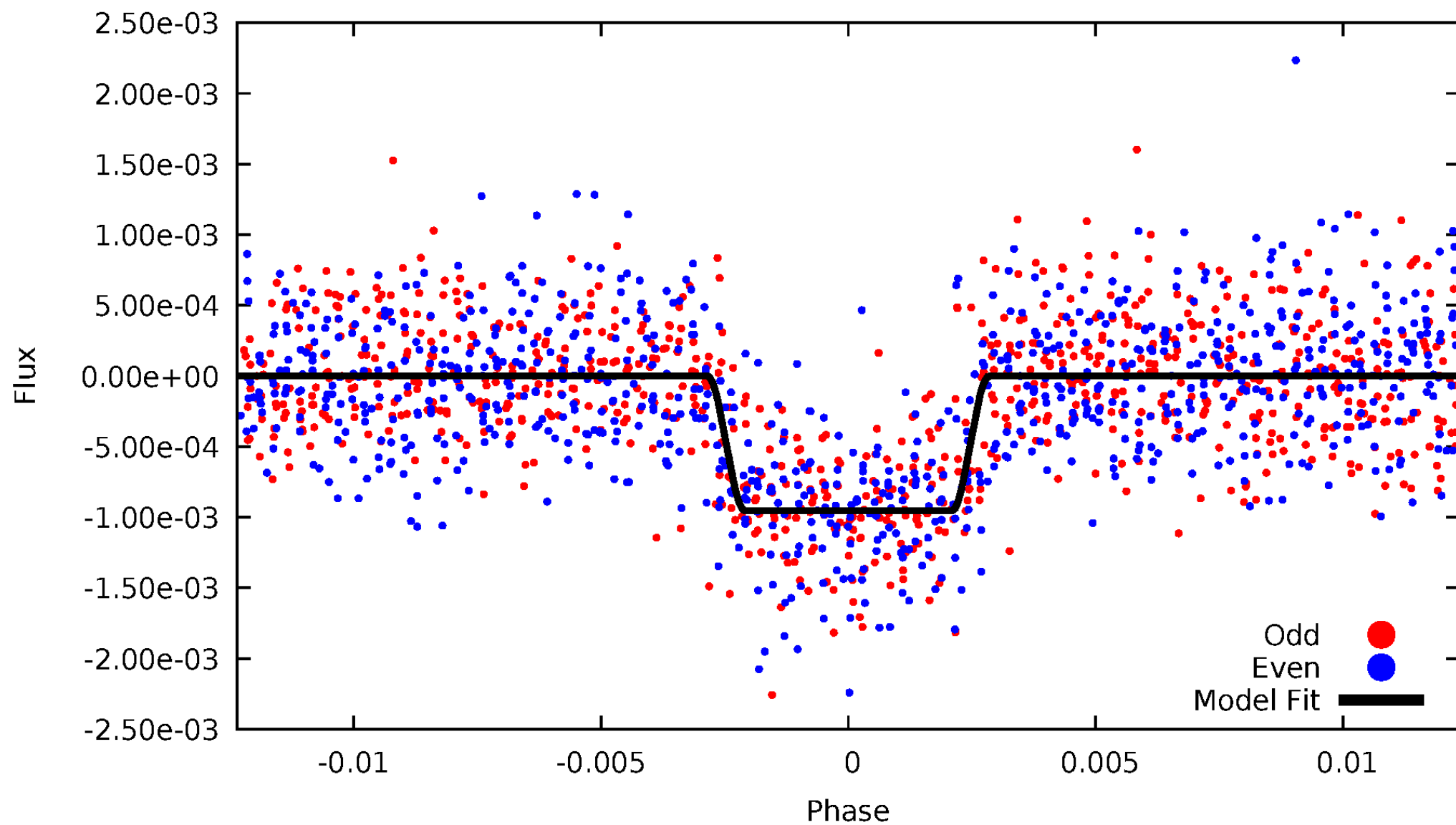
DV Odd/Even

TCE 005358241-02



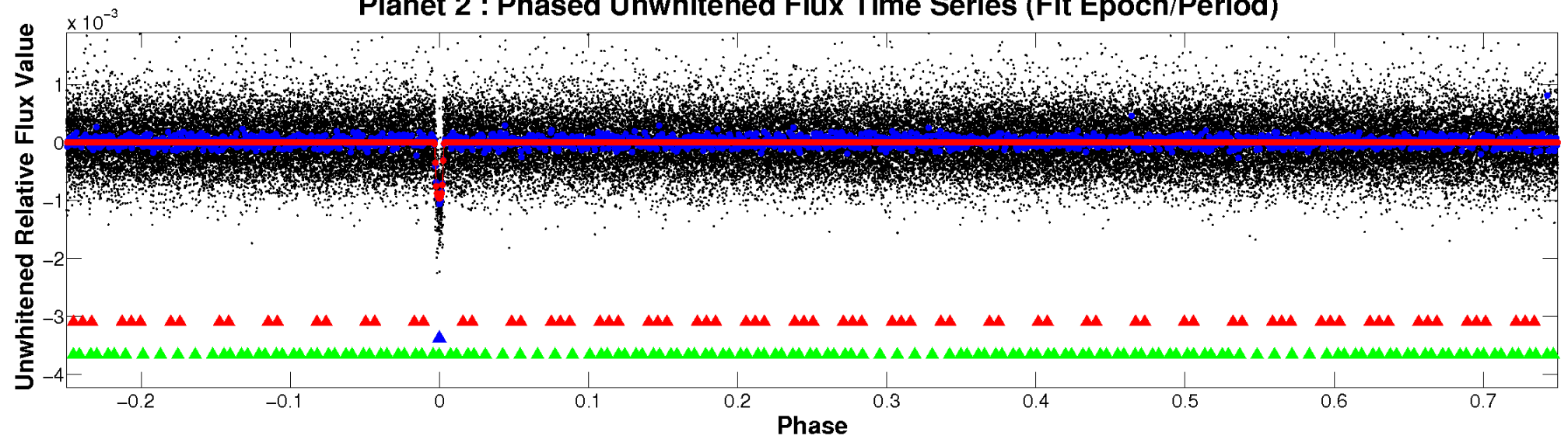
ALT Odd/Even

TCE 005358241-02

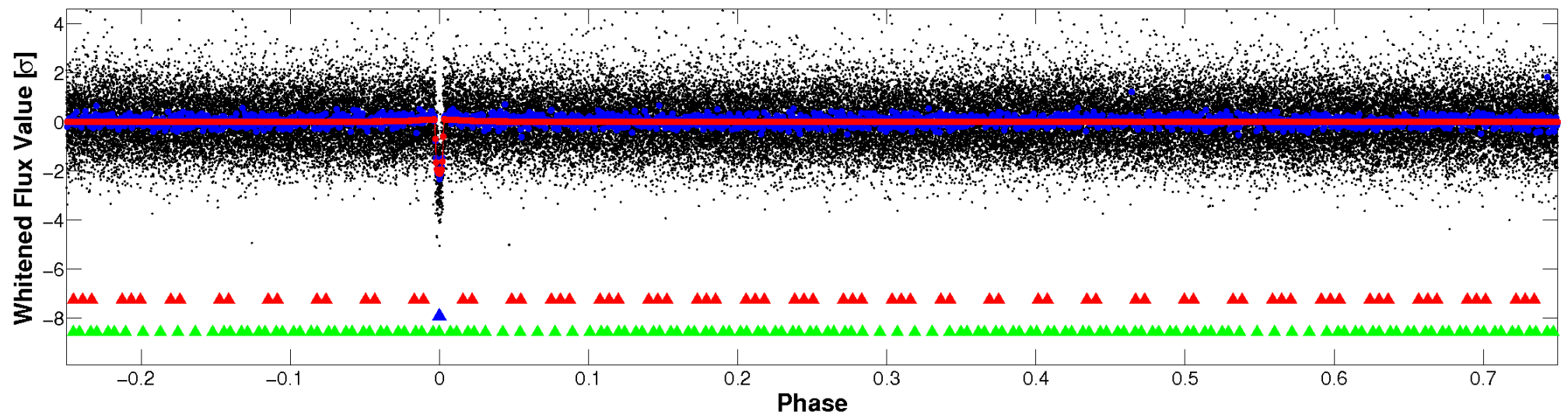


Non-Whitened Vs. Whitened Light Curve

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

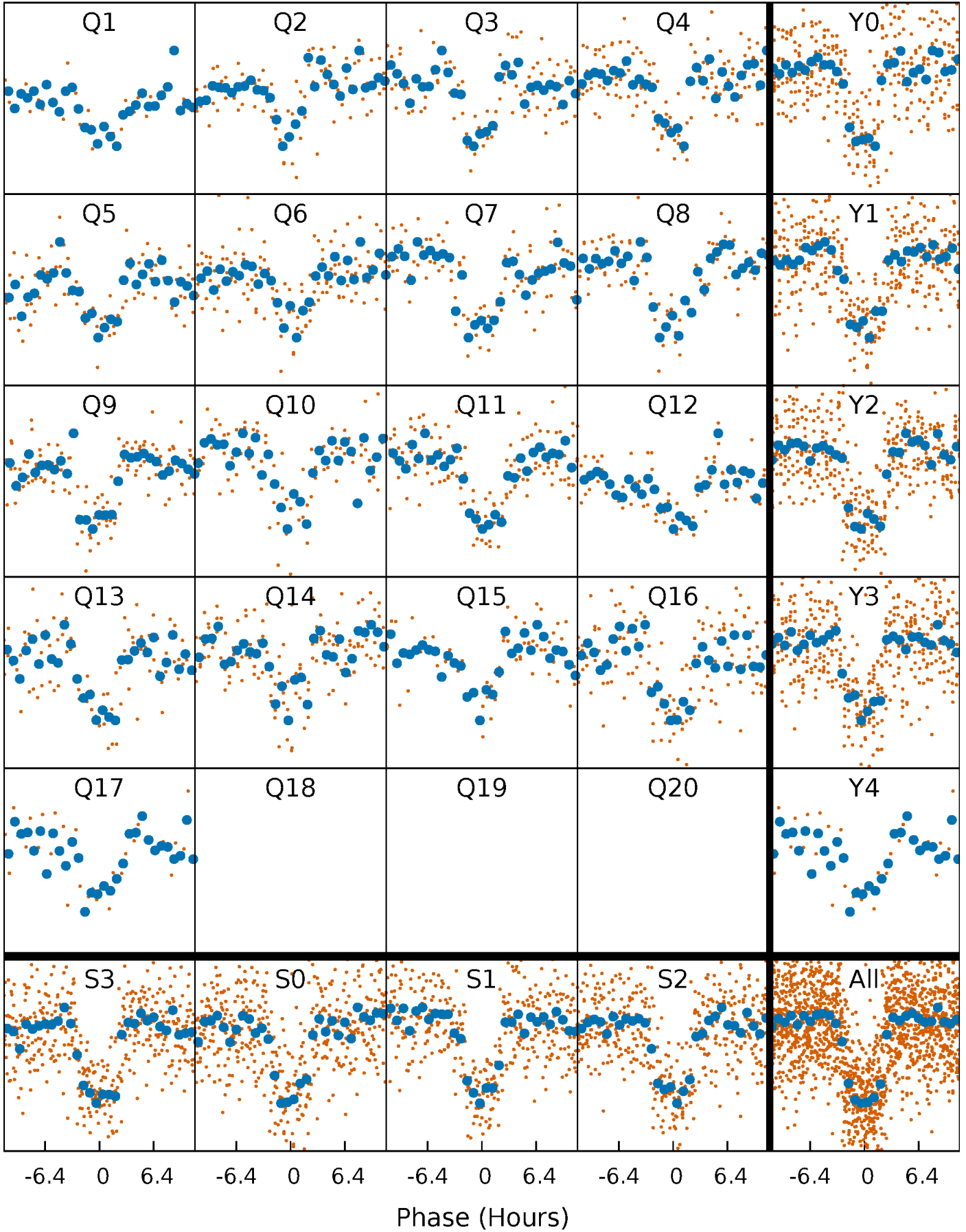


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



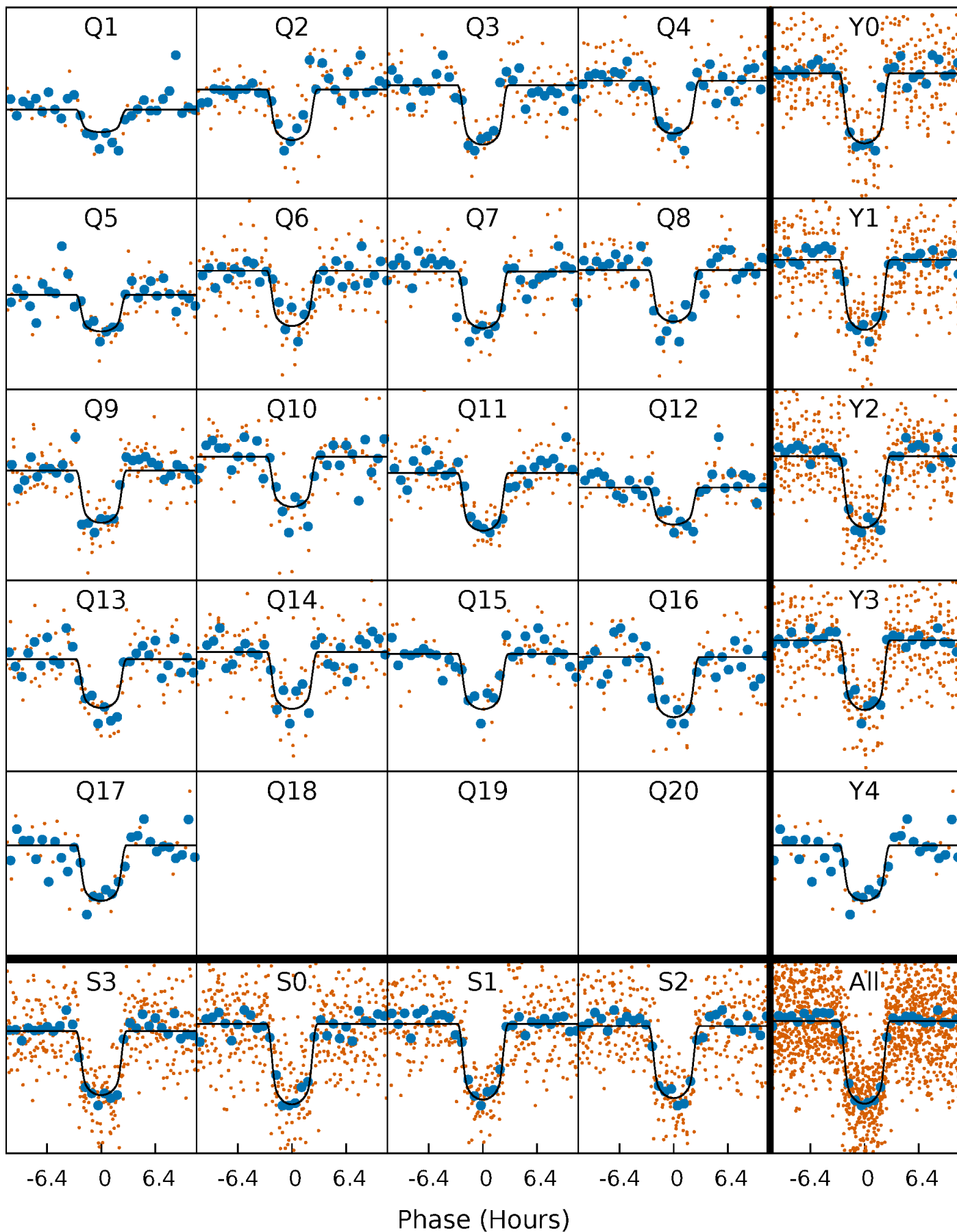
PDC Quarter-Phased Transit Curves

TCE 005358241-02 P= 38.557571 Days $T_0=163.853421$ (BKJD)



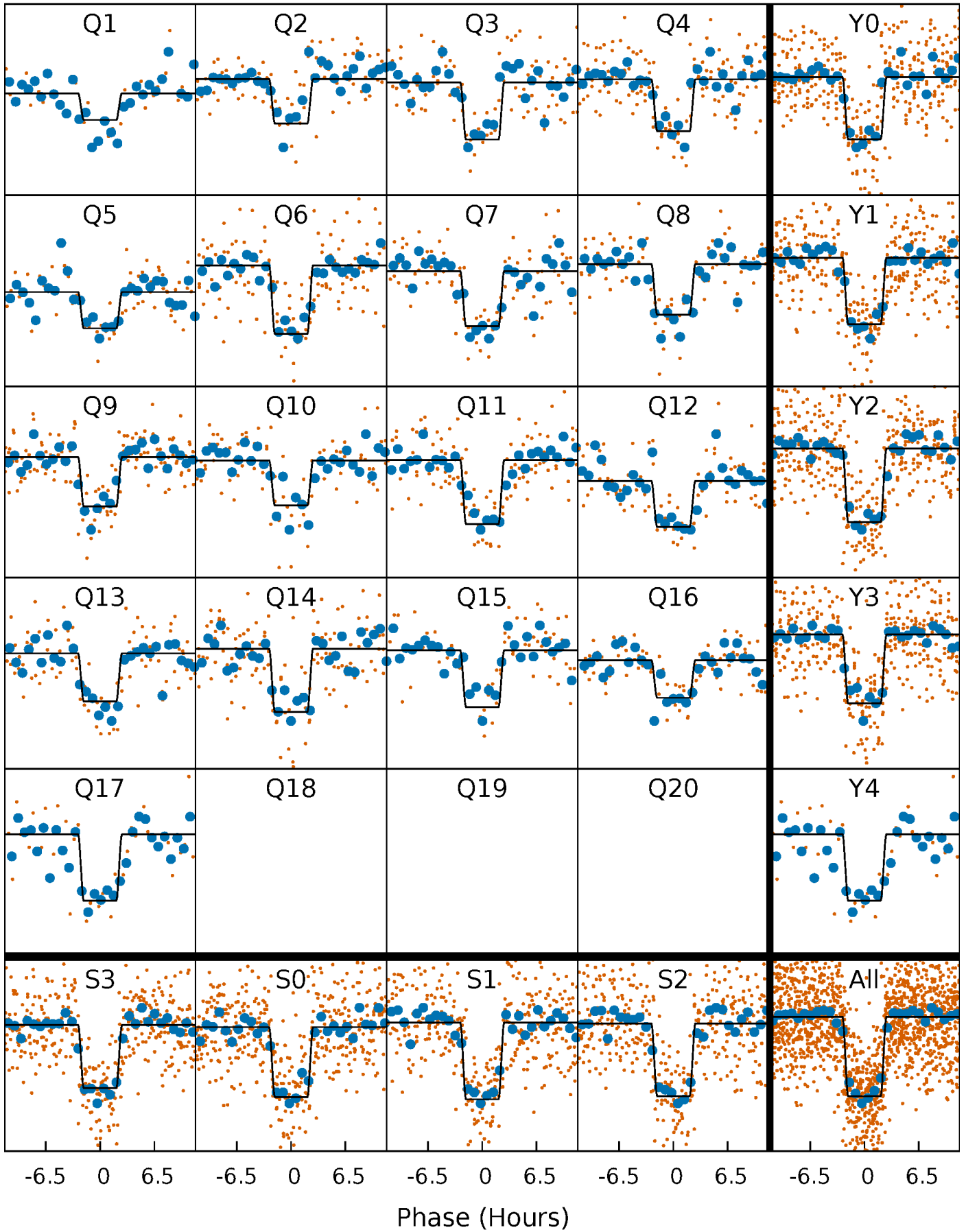
DV Quarter-Phased Transit Curves

TCE 005358241-02 P= 38.557571 Days $T_0=163.853421$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

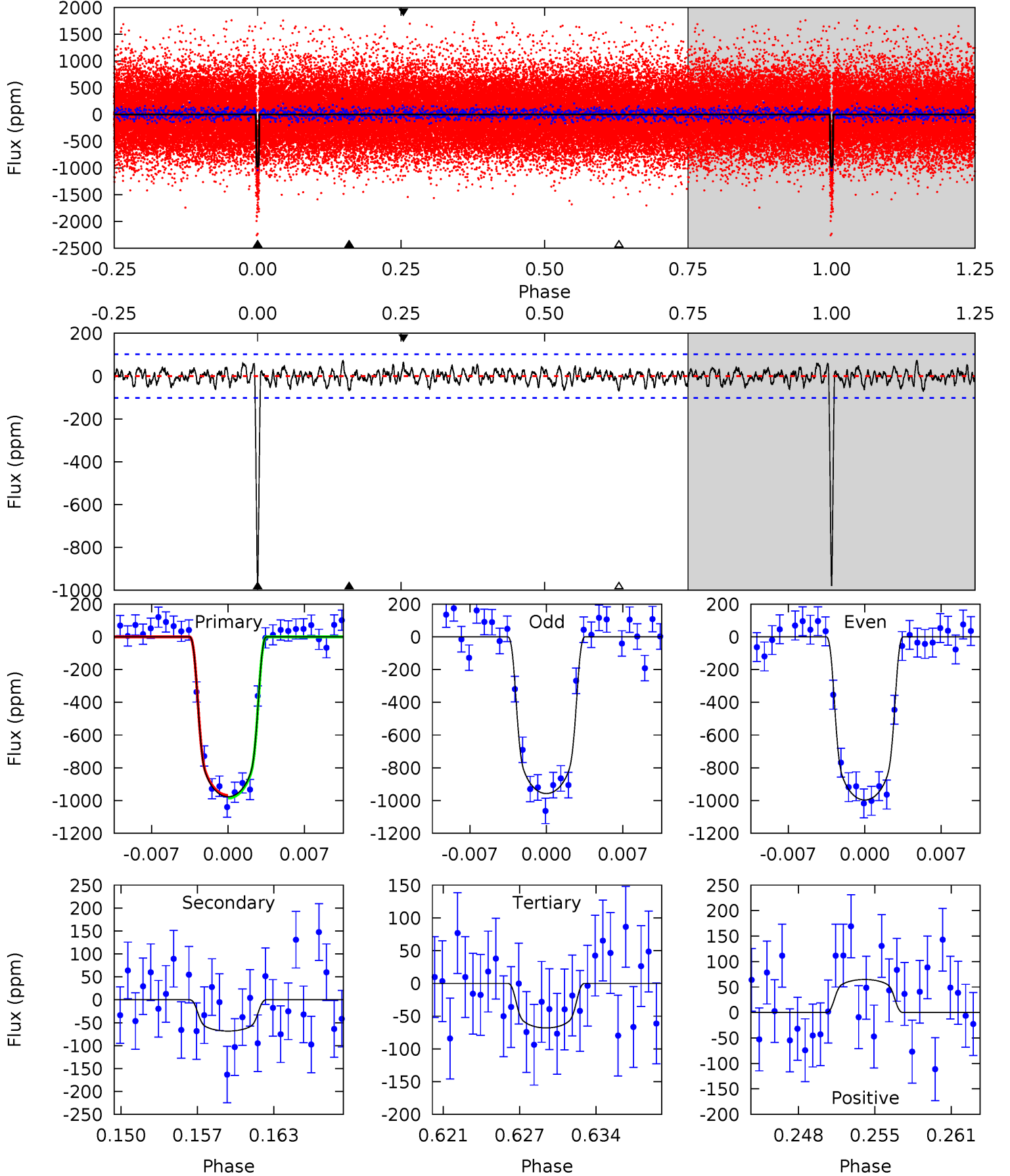
TCE 005358241-02 P= 38.557242 Days $T_0=163.858781$ (BKJD)



DV Model-Shift Uniqueness Test

005358241-02, $P = 38.557571$ Days, $E = 125.295850$ Days

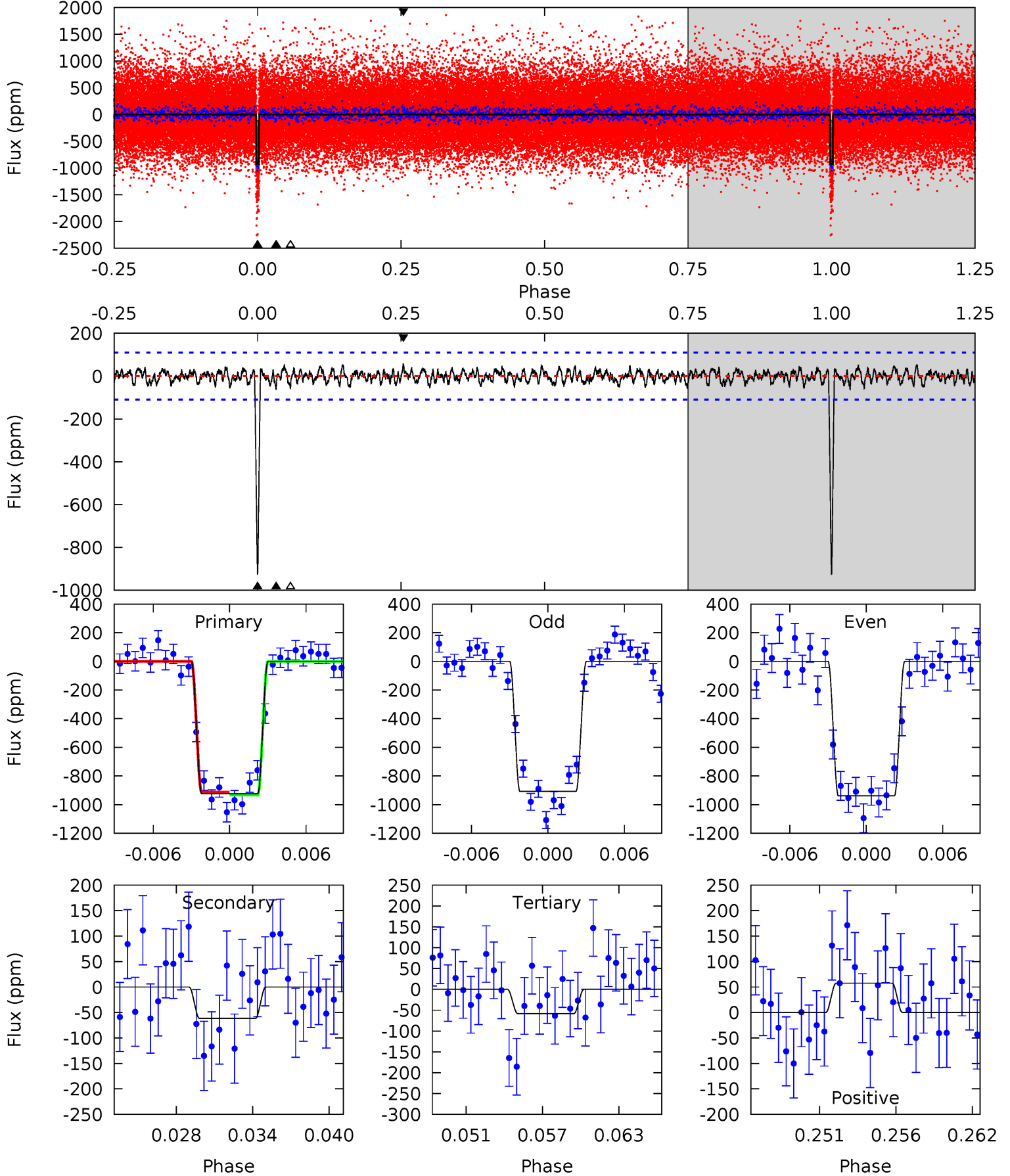
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
49.1	3.43	3.42	3.26	5.11	2.72	1.21	45.7	45.9	0.01	0.18	1.00	1.02	0.07	0.41



Alt Model-Shift Uniqueness Test

005358241-02, P = 38.557242 Days, E = 125.301539 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
43.4	2.88	2.74	2.70	5.13	2.76	1.01	40.6	40.7	0.14	0.18	0.73	1.00	0.06	0.51



Stellar Parameters For KIC 005358241

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5775^{+78}_{-78}	$4.405^{+0.066}_{-0.123}$	$0.160^{+0.150}_{-0.150}$	$1.053^{+0.161}_{-0.094}$	$1.026^{+0.062}_{-0.062}$	$1.237^{+0.328}_{-0.439}$
	+1%/-1%	+1%/-3%	+94%/-94%	+15%/-9%	+6%/-6%	+27%/-35%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 005358241-02 / KOI 0829.03

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-68 ± 20	$3.92^{+0.40}_{-0.31}$	774^{+33}_{-25}	3376^{+155}_{-170}	121^{+44}_{-39}
Alt.	-61 ± 21	$3.60^{+0.31}_{-0.26}$	774^{+31}_{-23}	3428^{+180}_{-217}	132^{+57}_{-48}

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

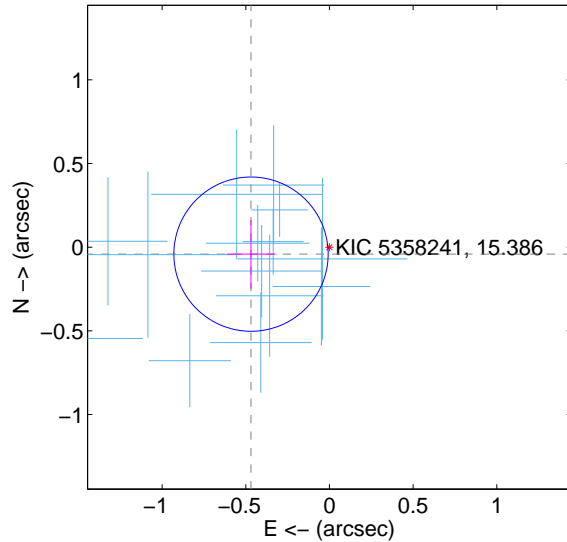
Supplemental centroid analysis for 005358241-02. Kepler magnitude: 15.39. Transit SNR 34.81

There are 16 quarters with good PRF difference image offsets

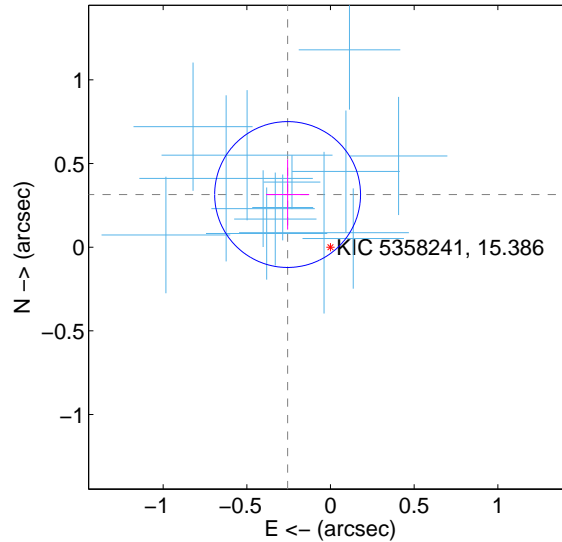
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.471 ± 0.154	3.06	0.469 ± 0.146	-0.042 ± 0.205
PRF-fit source offset from KIC position	0.406 ± 0.145	2.79	0.257 ± 0.129	0.315 ± 0.210
photometric centroid source offset	0.16 ± 0.35	0.46	0.14 ± 0.36	-0.07 ± 0.30

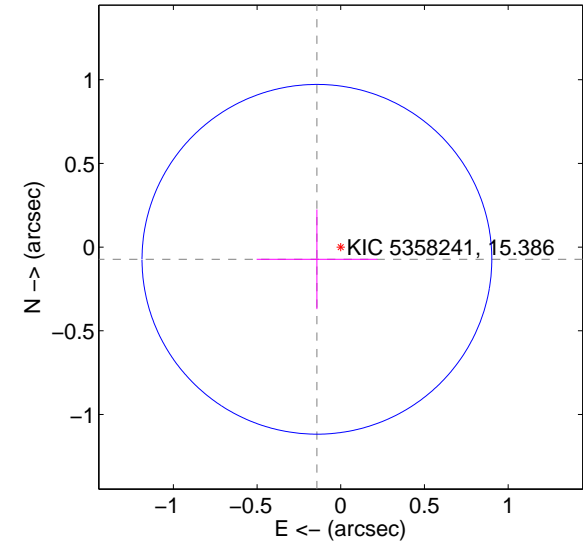
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

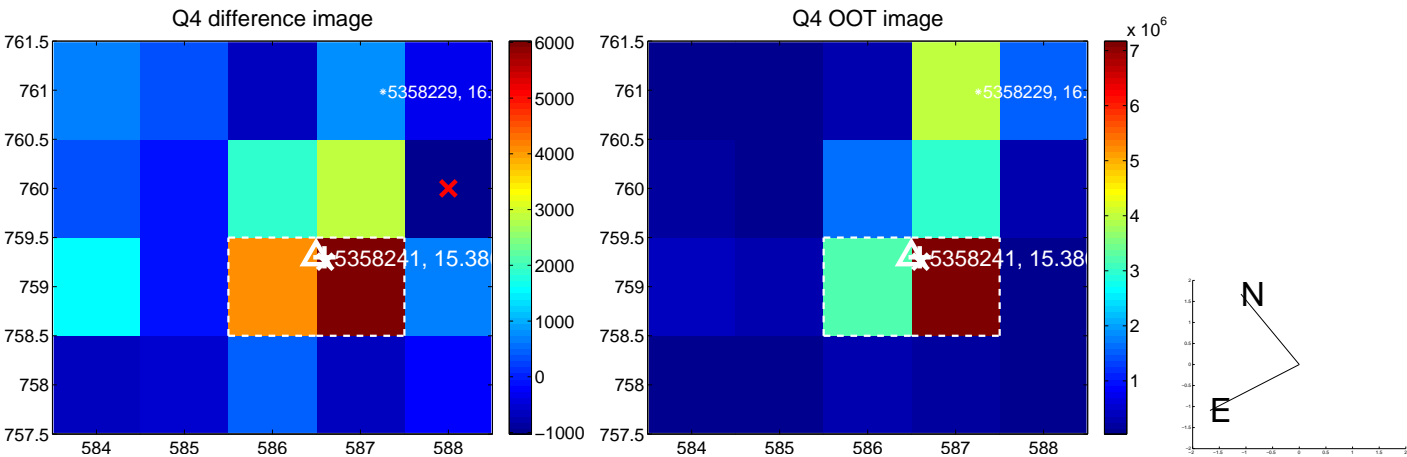
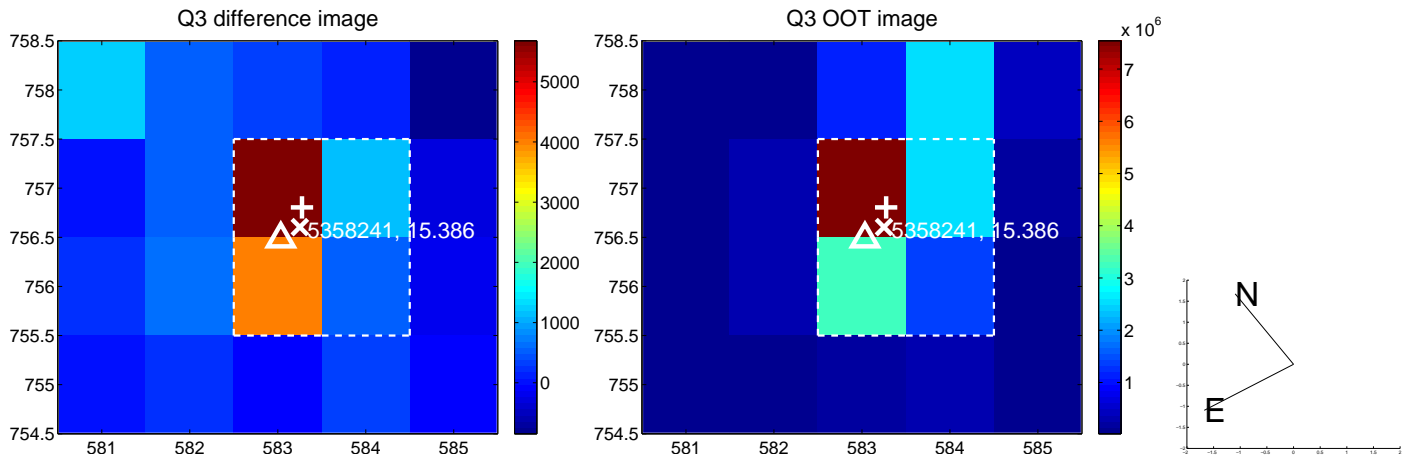
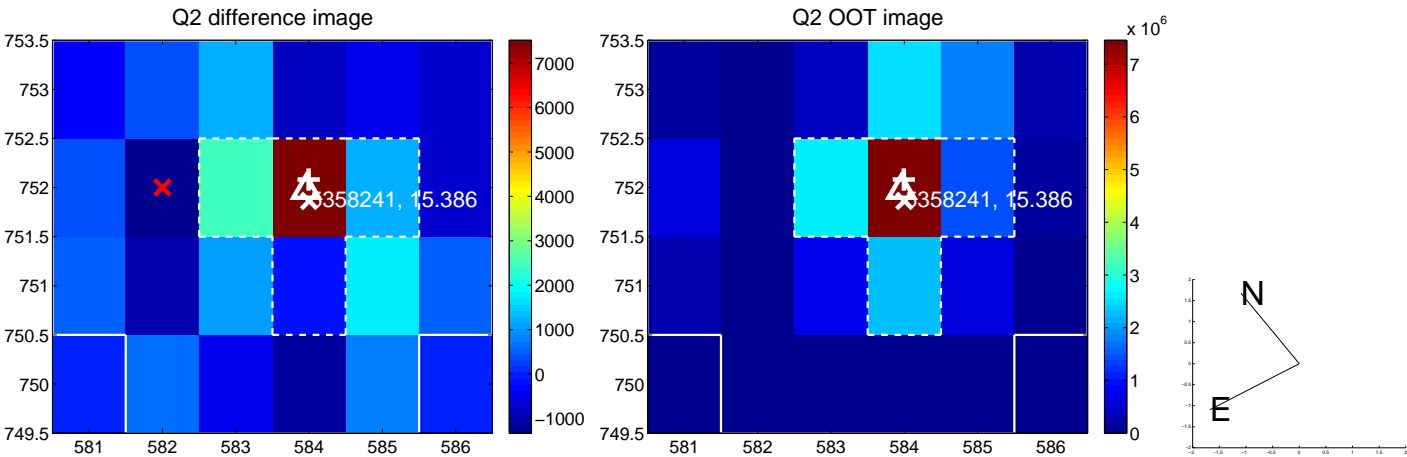
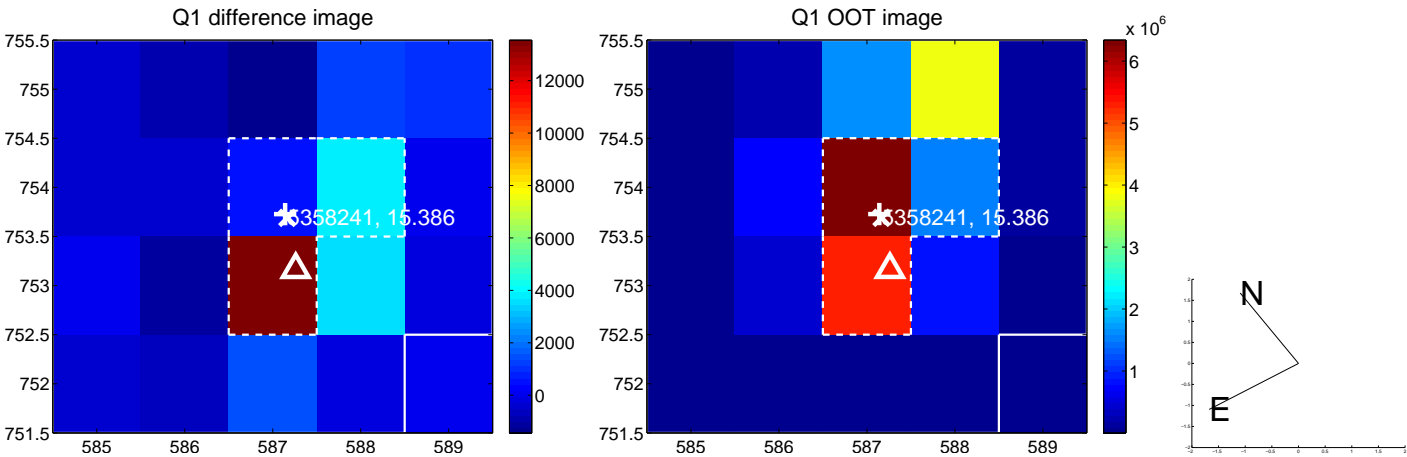


offset from photometric centroids

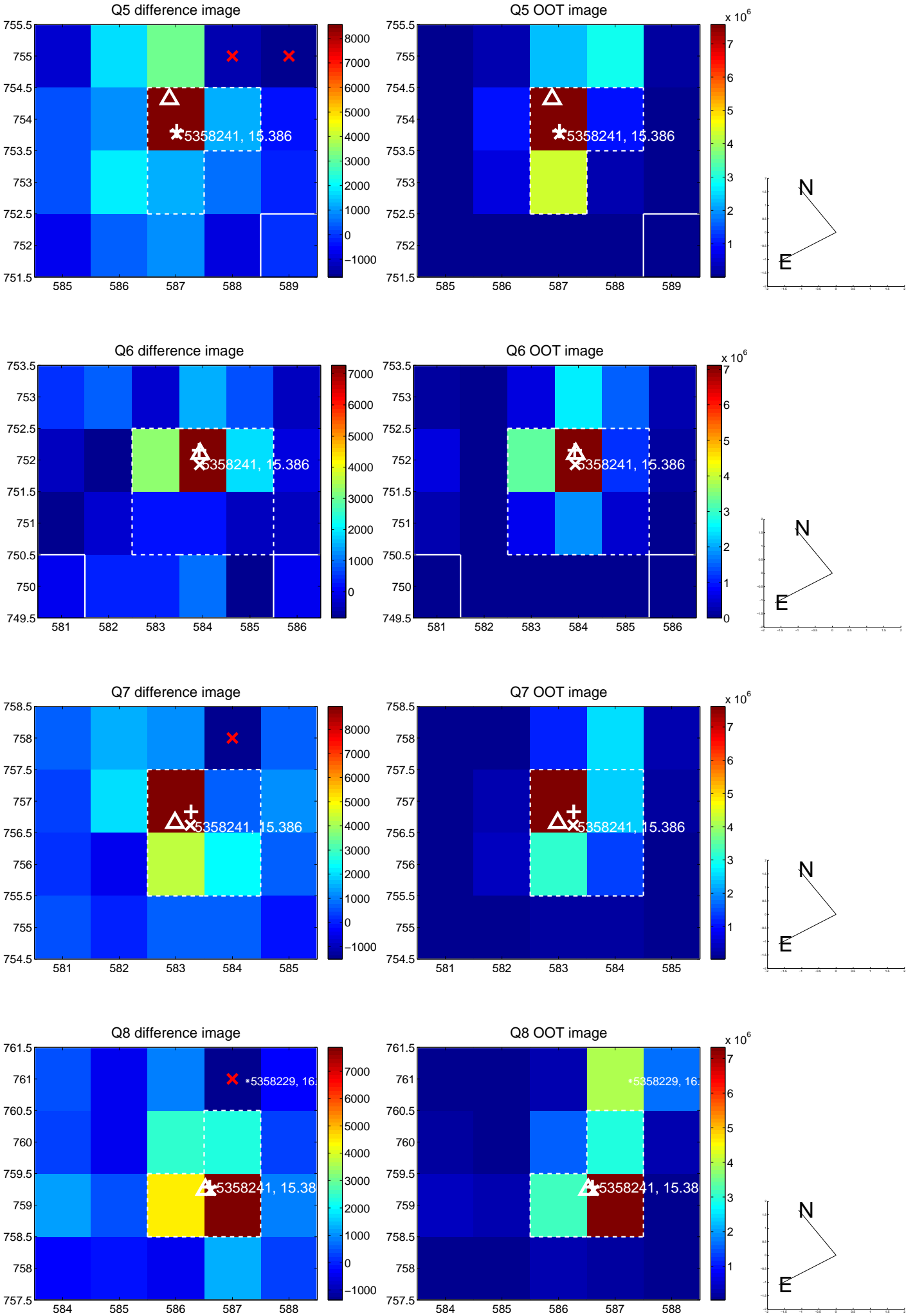


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

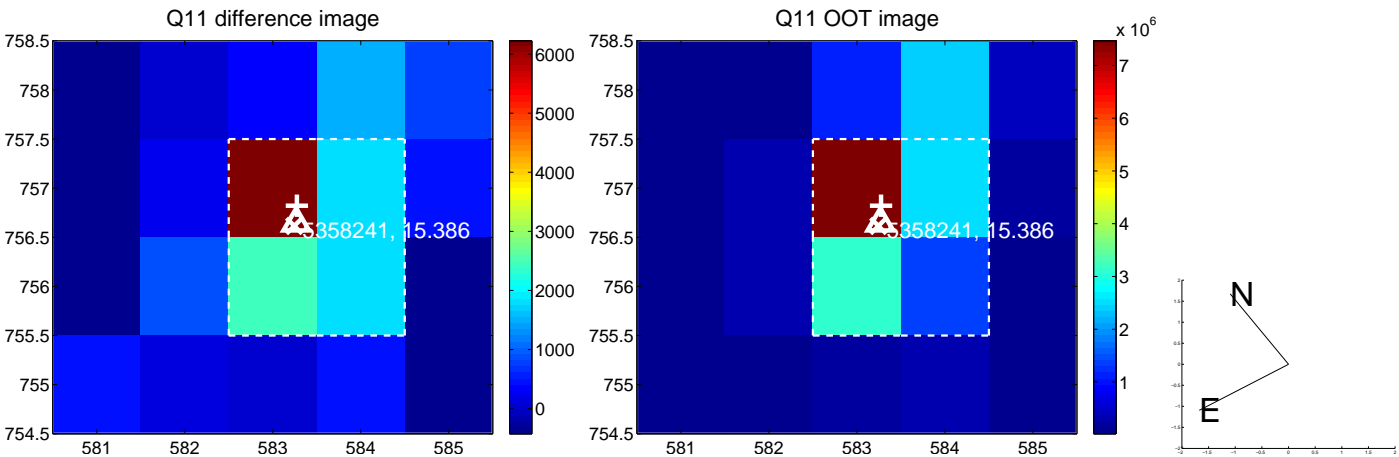
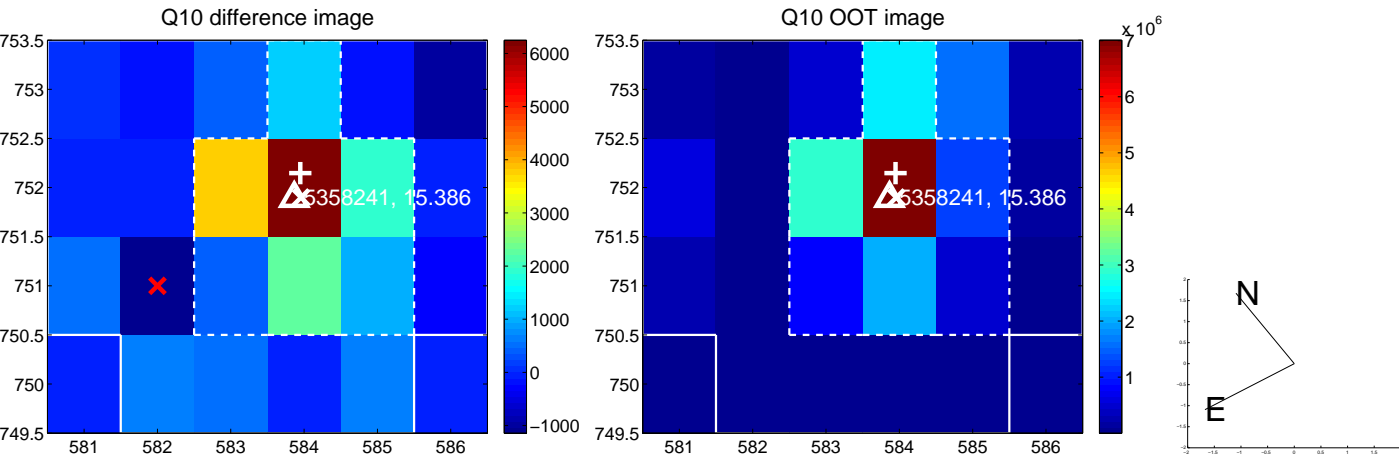
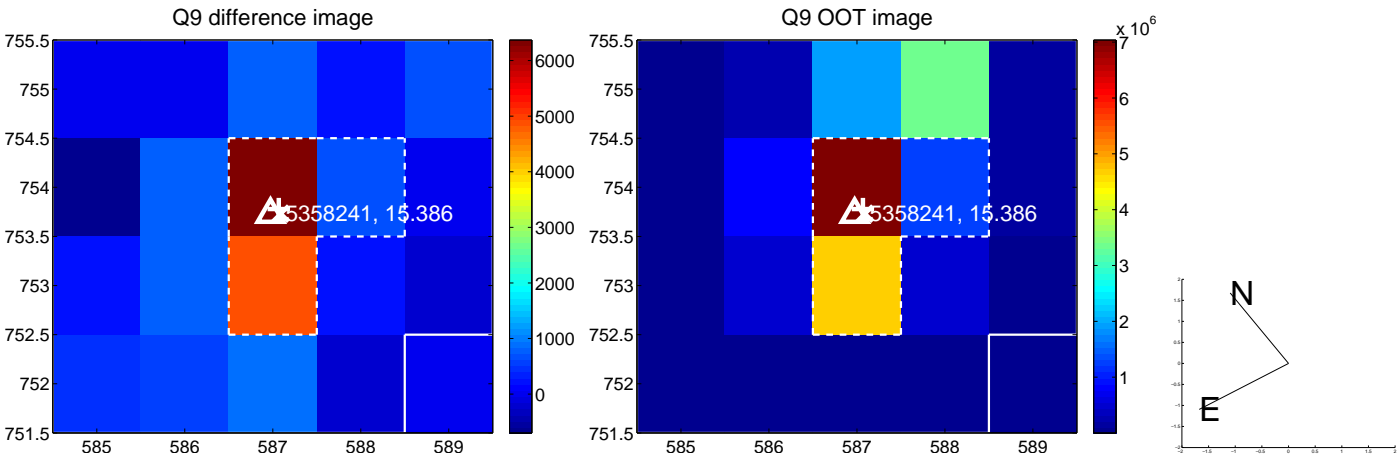
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



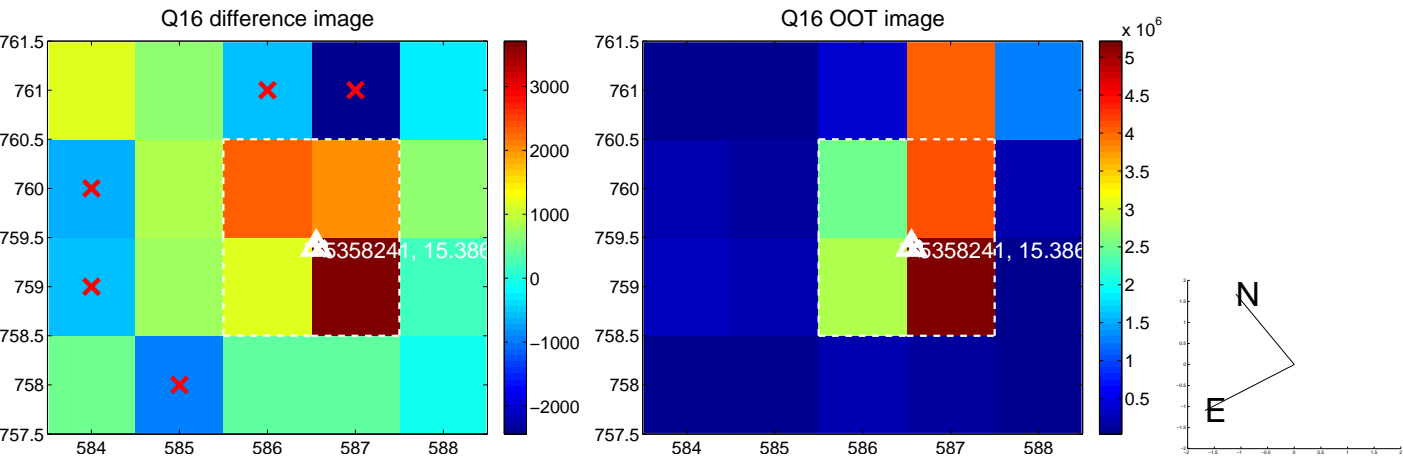
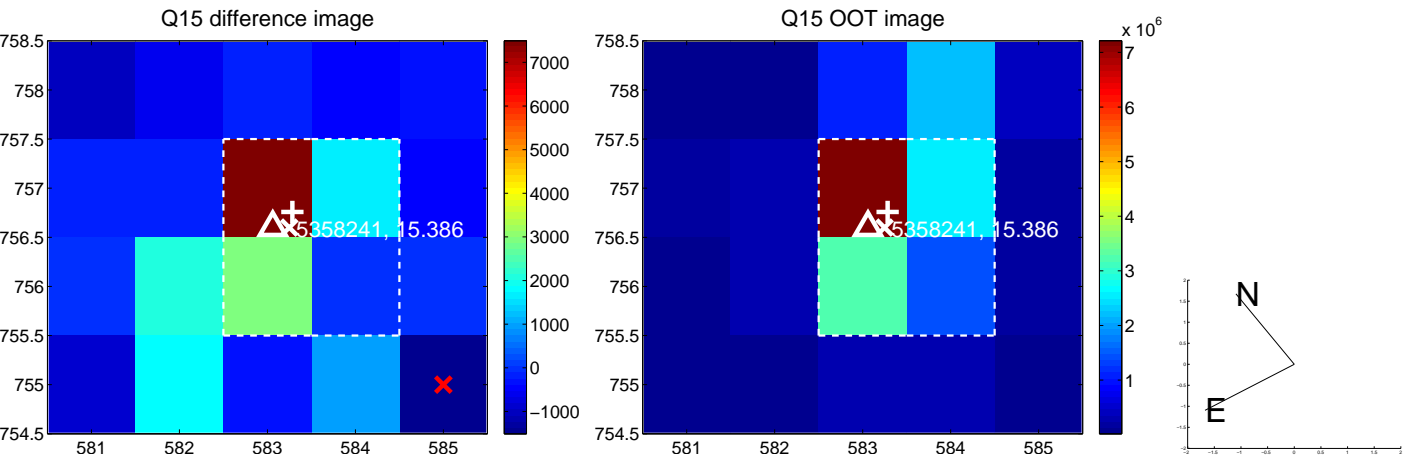
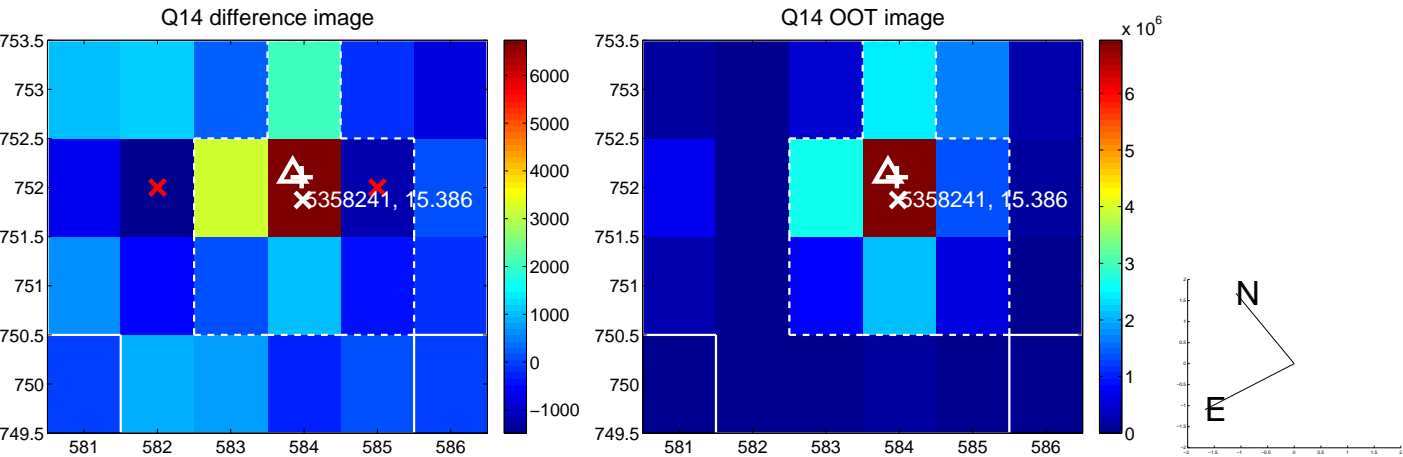
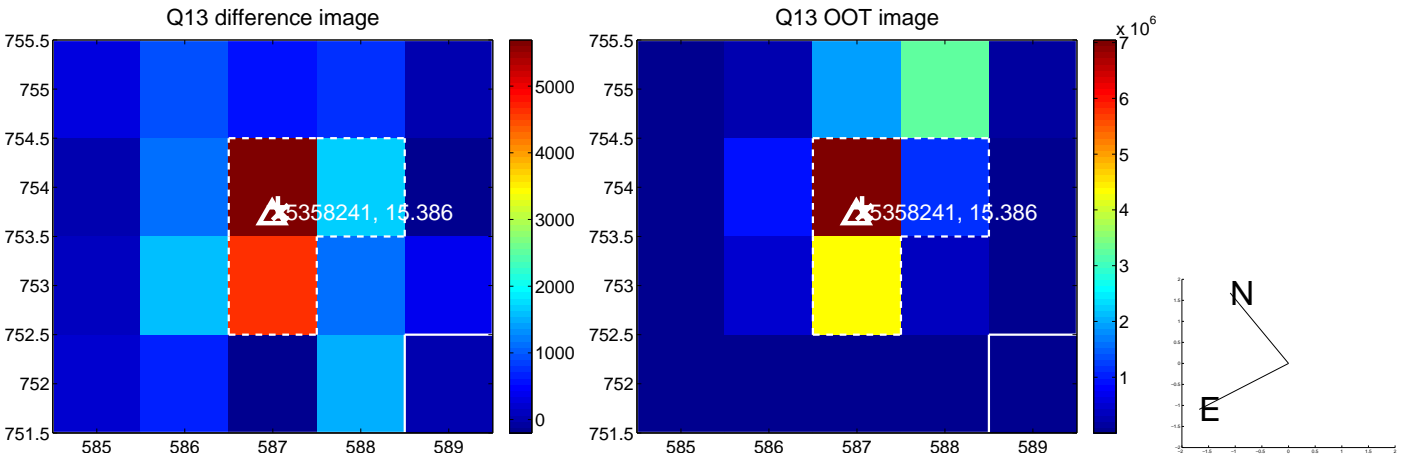
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



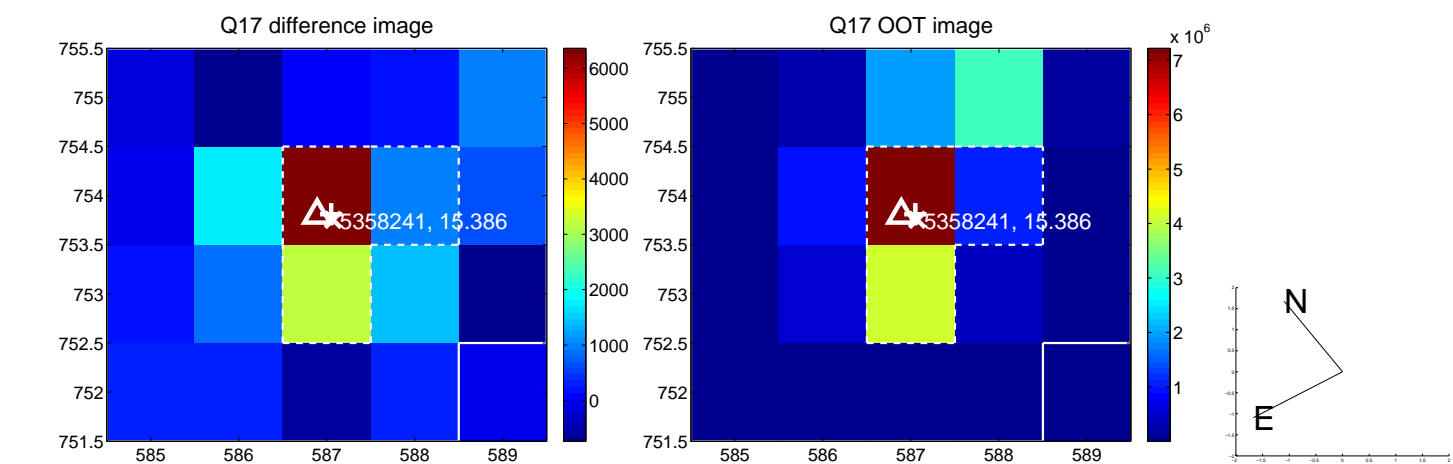
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



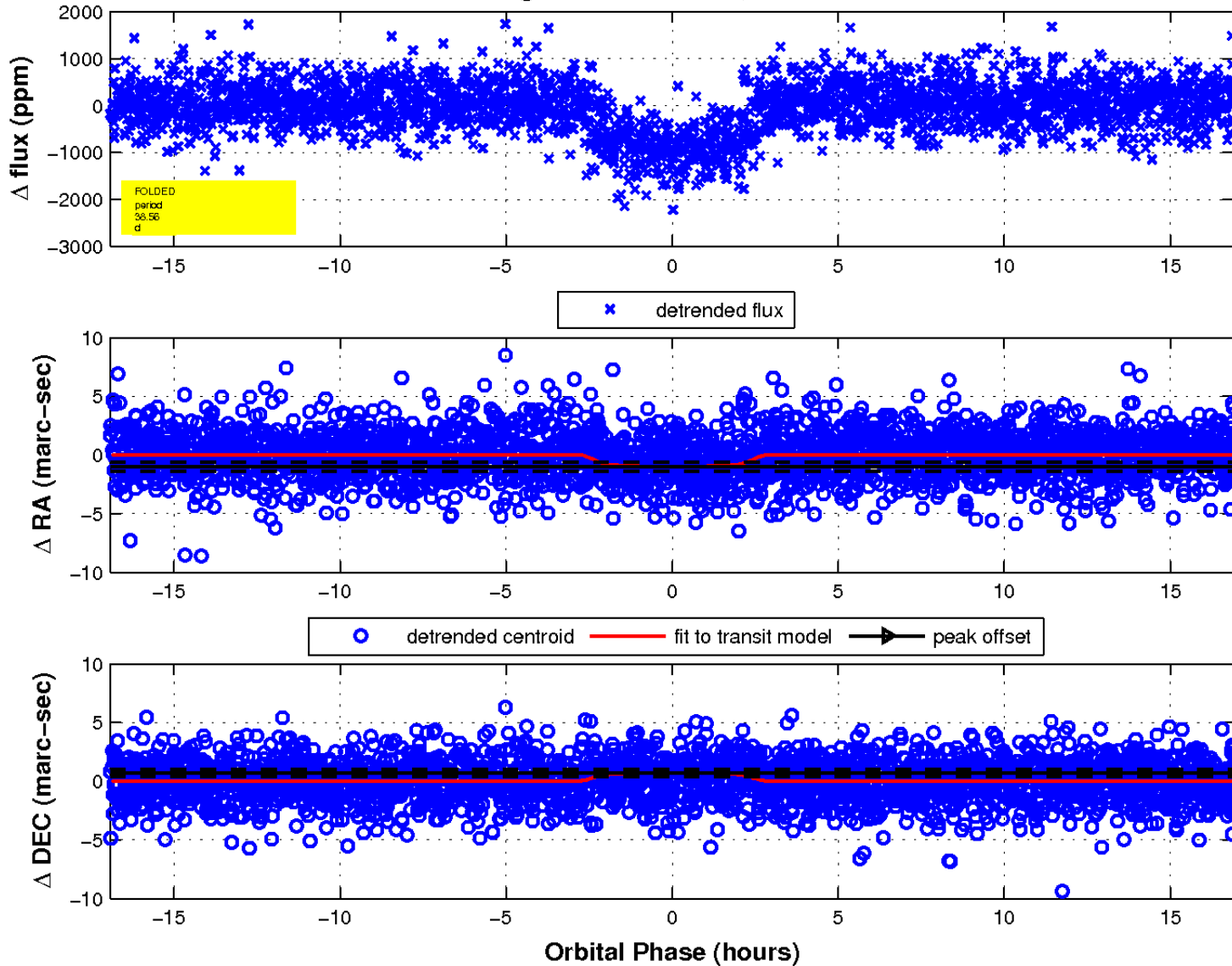
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

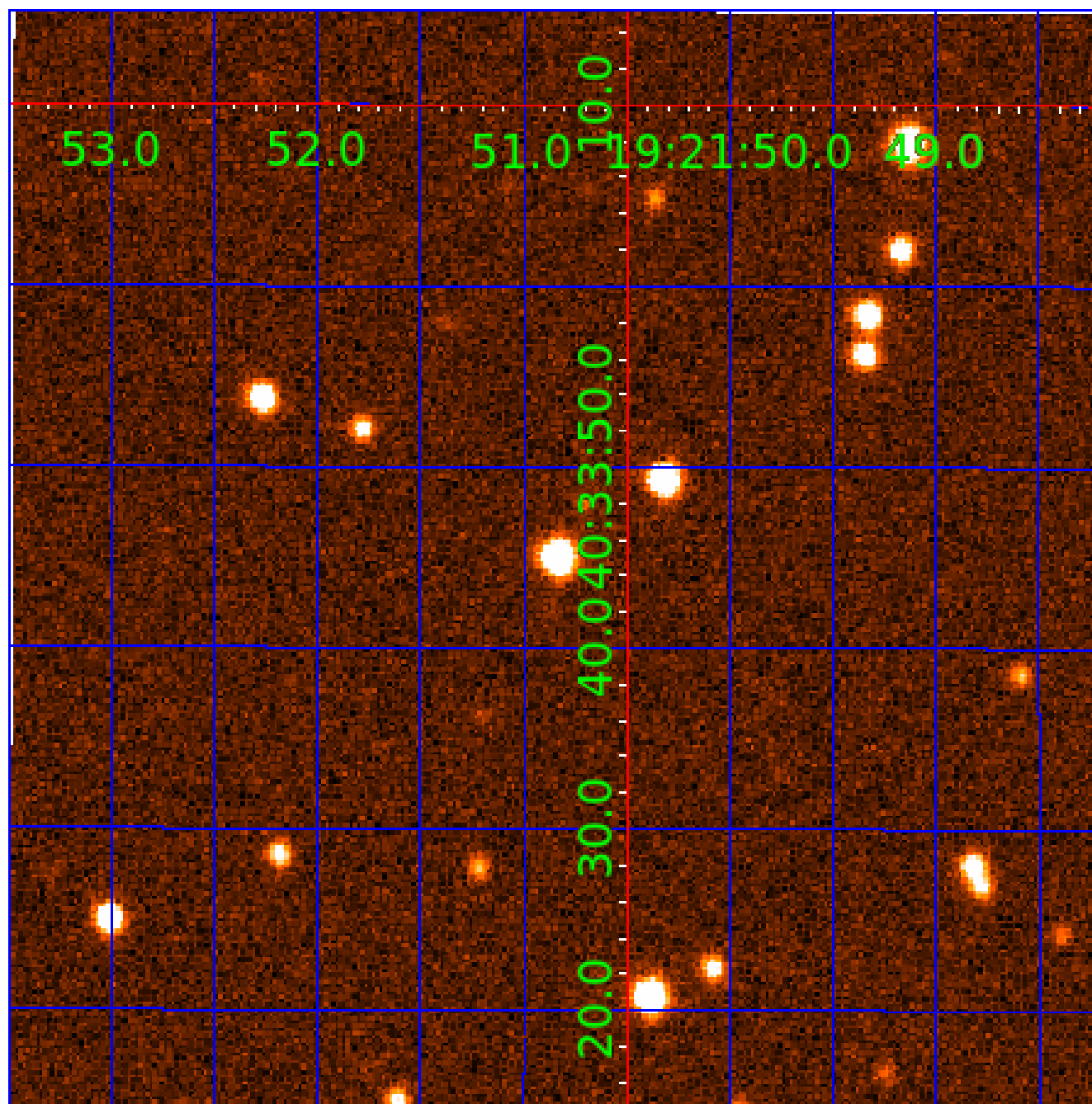


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 005358241

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})
005358241-01	OBS	0829.01	18.649285	137.474328	890.2	4.744	36.0	40.7	1.05	5775	3.59	57.26
005358241-02	OBS	0829.03	38.557571	163.853421	969.2	5.641	32.6	34.8	1.05	5775	3.87	21.74
005358241-03	OBS	0829.02	9.752006	138.781608	412.8	4.712	24.3	26.2	1.05	5775	2.67	135.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005358241-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005358241-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005358241-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

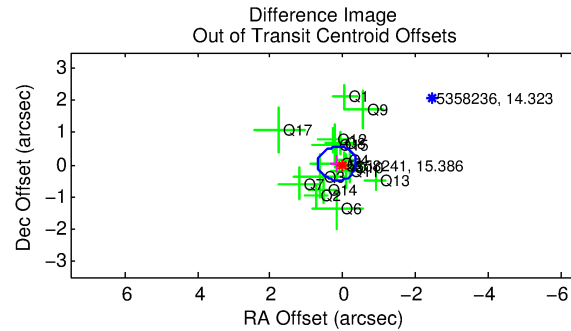
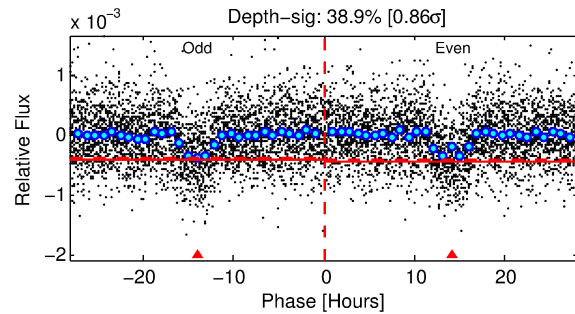
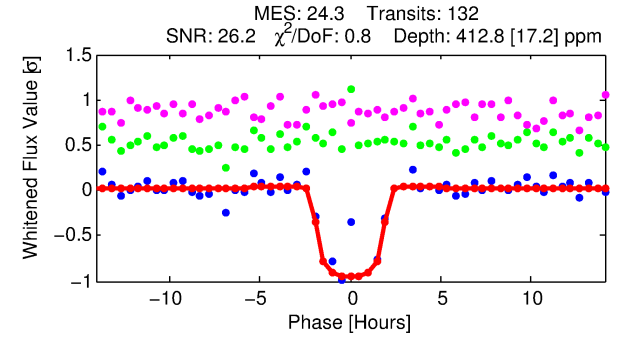
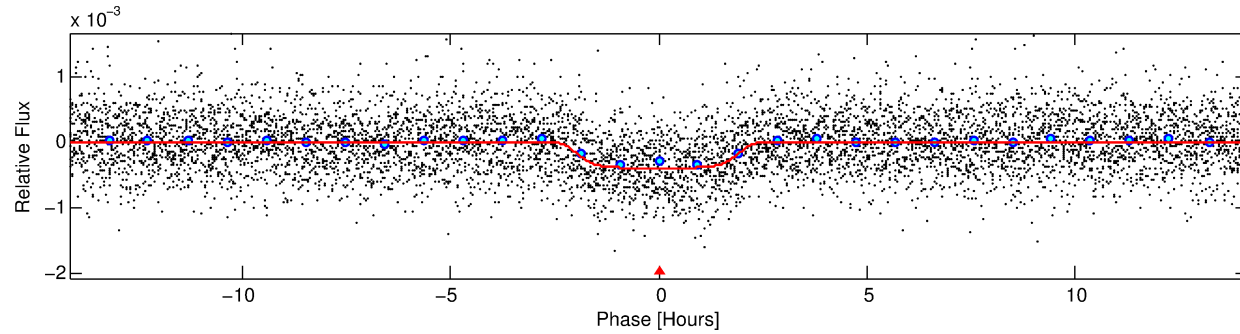
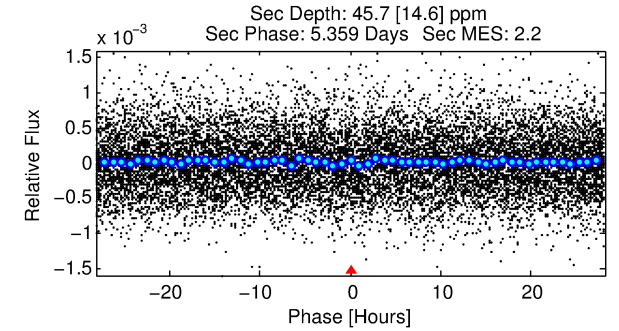
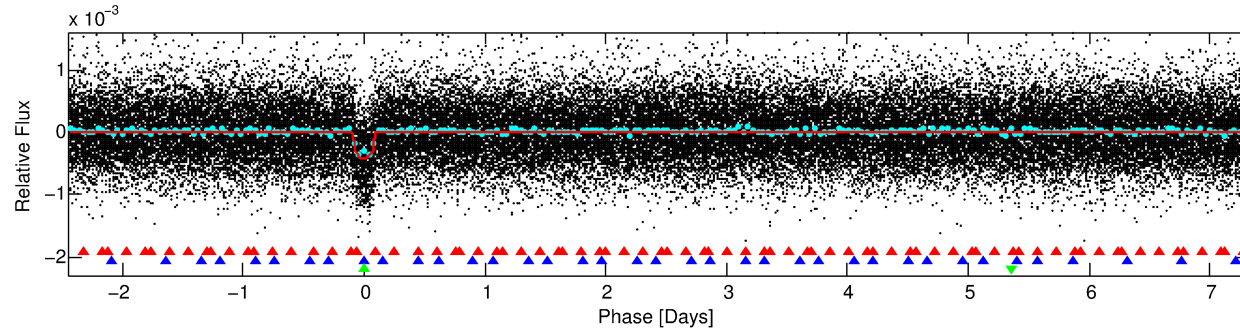
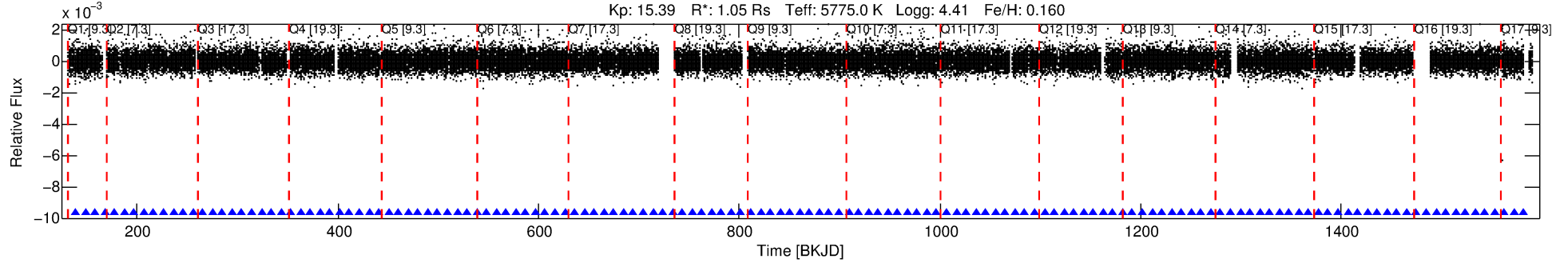
Ephemeris Match Information For 005358241-03

No Significant Match Found

DV One-Page Summary

KIC: 5358241 Candidate: 3 of 3 Period: 9.752 d
KOI: K00829.02 Name: Kepler-53d Corr: 0.982

Kp: 15.39 R*: 1.05 Rs Teff: 5775.0 K Logg: 4.41 Fe/H: 0.160



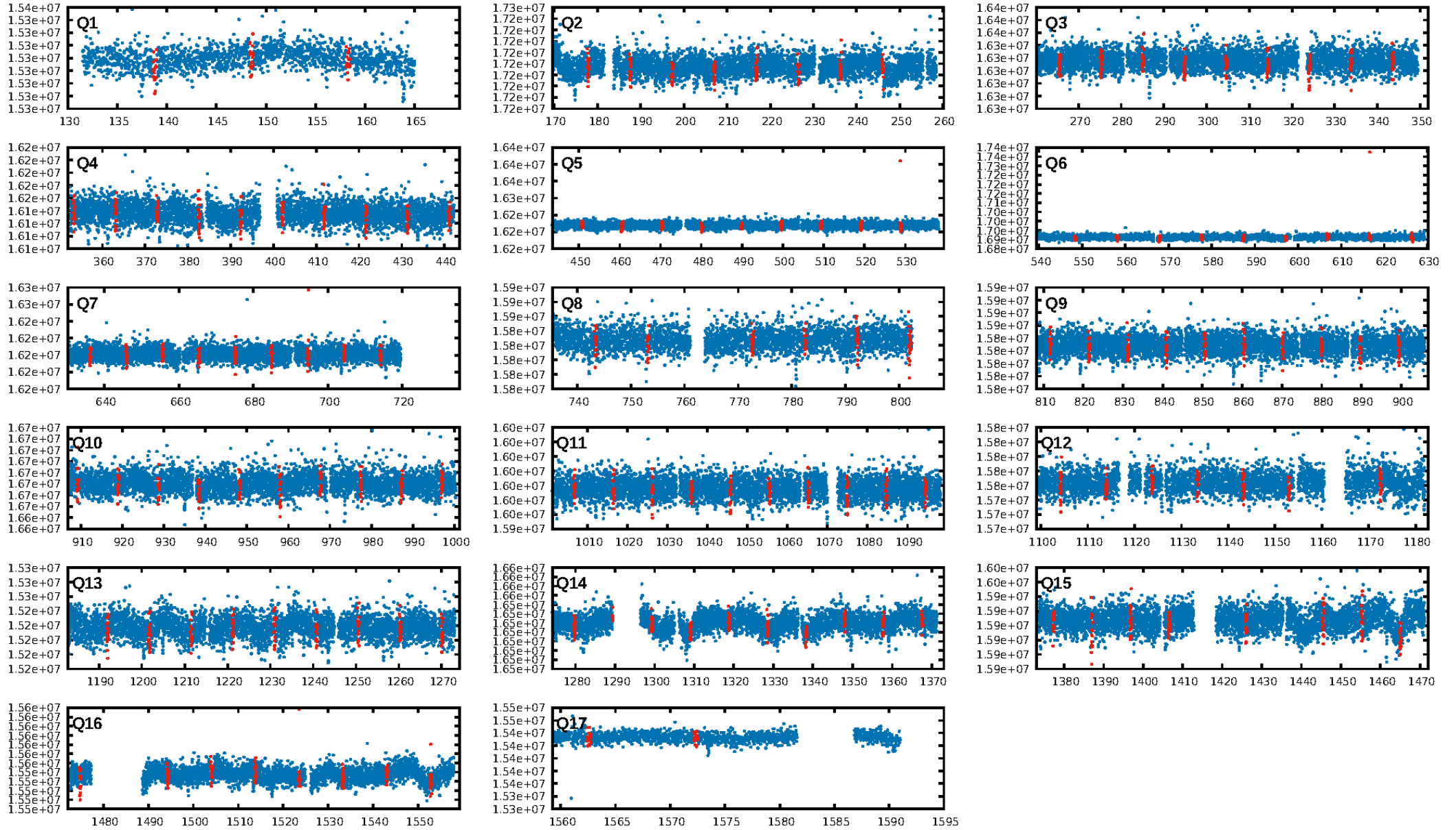
DV Fit Results:

Period = 9.75201 [0.00005] d
Epoch = 138.7816 [0.0039] BKJD
Rp/R* = 0.0233 [0.0012]
a/R* = 6.52 [1.33]
b = 0.94 [0.03]
Seff = 135.91 [30.07]
Teq = 871 [48] K
Rp = 2.67 [0.43] Re
a = 0.0902 [0.0125] AU
Ag = 28.59 [11.38] [2.42σ]
Teffp = 3113 [264] K [8.35σ]

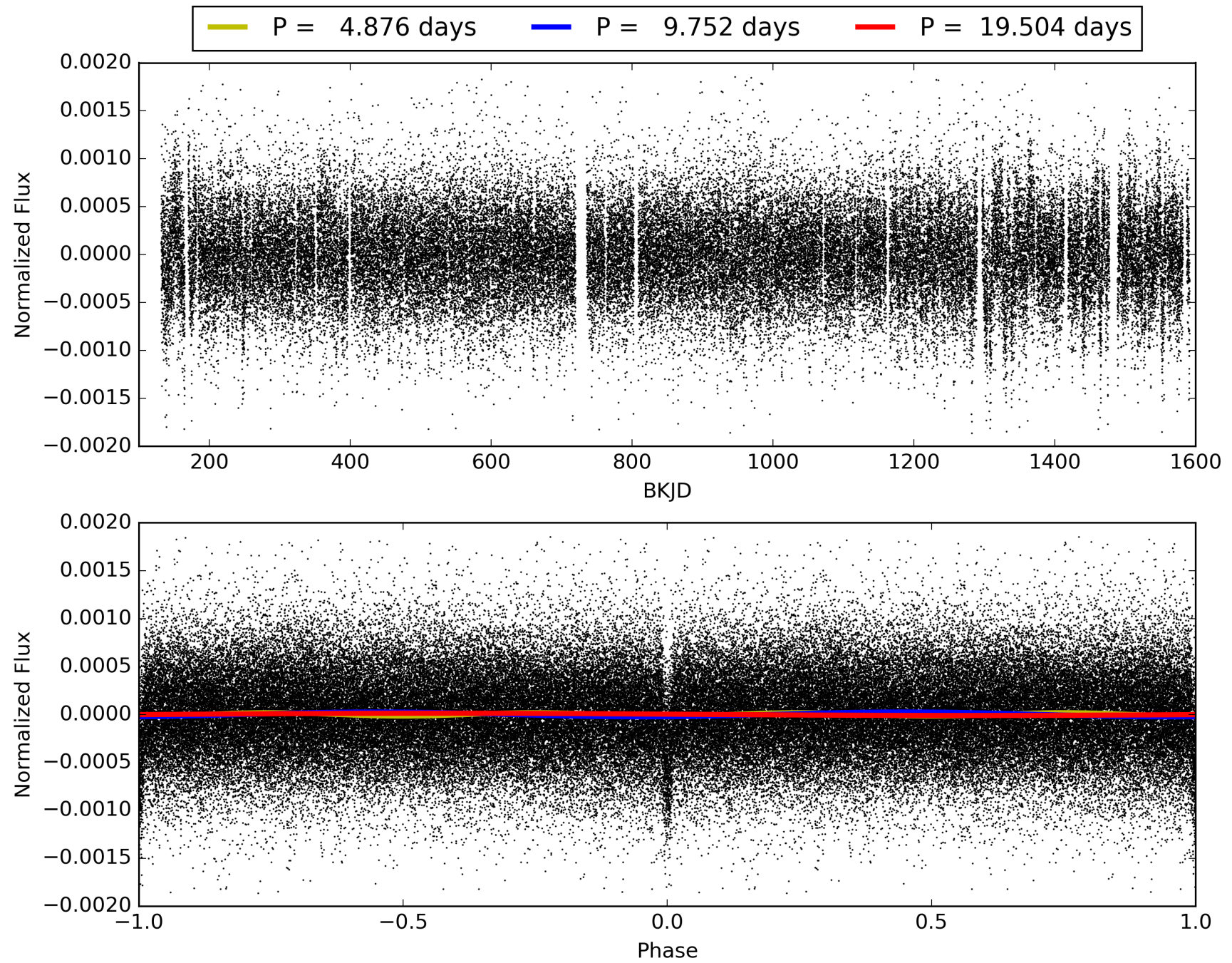
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [31.94σ]
ModelChiSquare2-sig: 98.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.69e-124
RollingBand-fgt: 1.00 [127/127]
GhostDiagnostic-chr: 2.453
Centroid-sig: 48.2%
Centroid-so: 0.766 arcsec [1.71σ]
OotOffset-rm: 0.161 arcsec [0.92σ]
KicOffset-rm: 0.417 arcsec [2.14σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.88 [14/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 005358241-03, PDC Light Curves

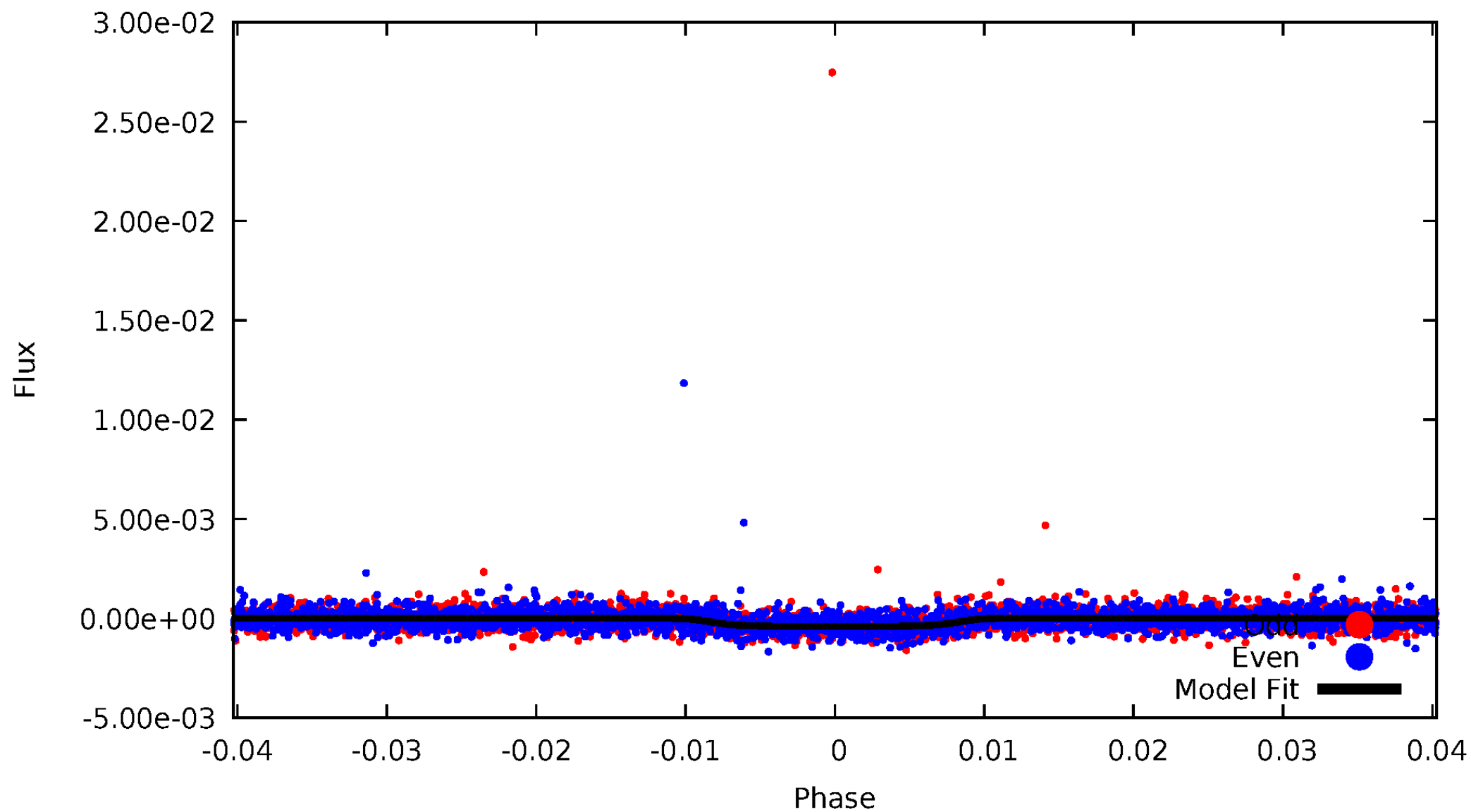


TCE 005358241-03



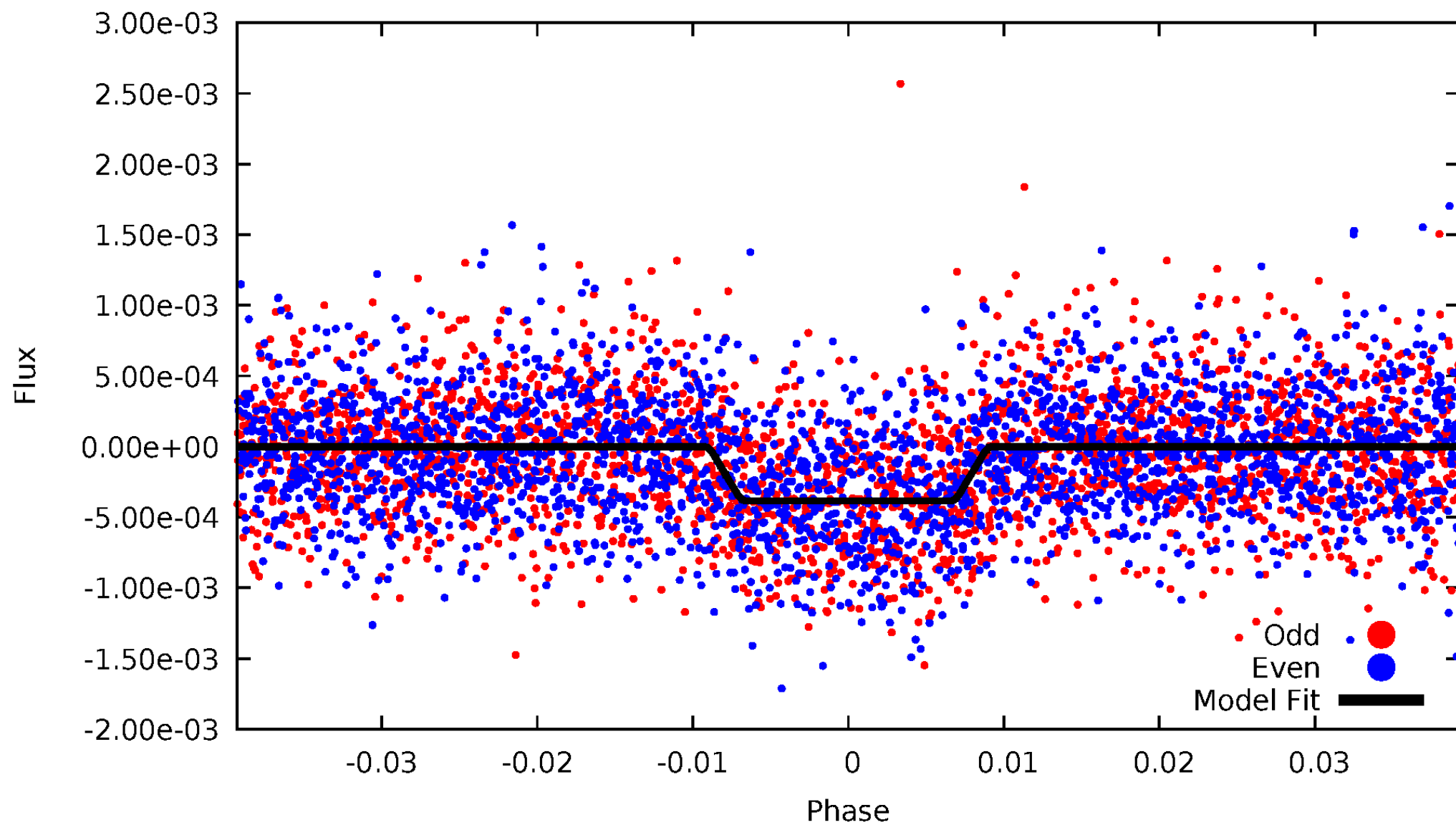
DV Odd/Even

TCE 005358241-03



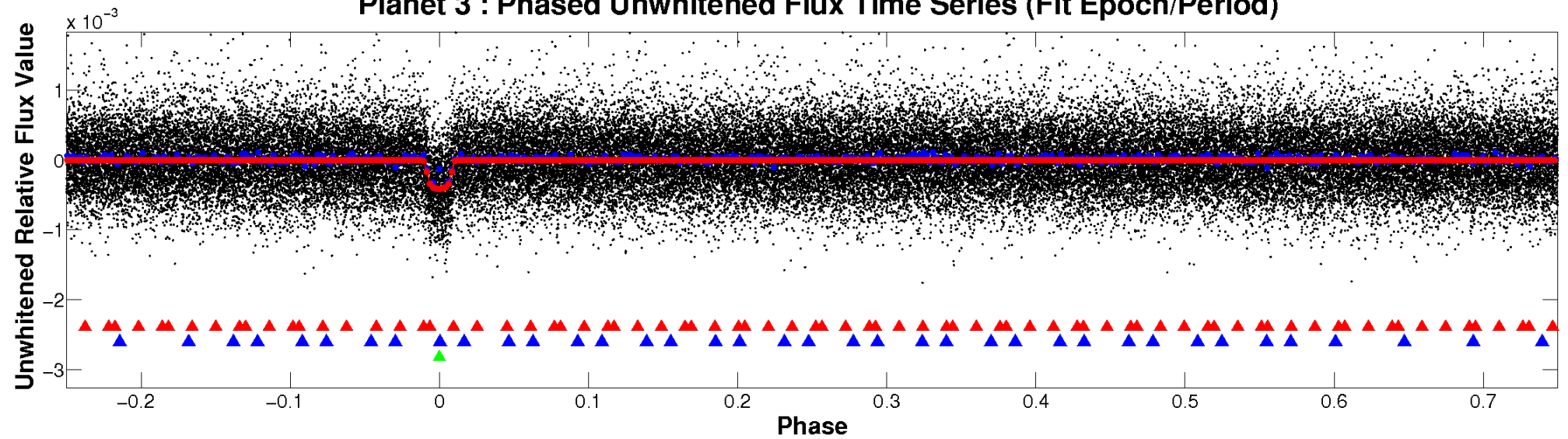
ALT Odd/Even

TCE 005358241-03

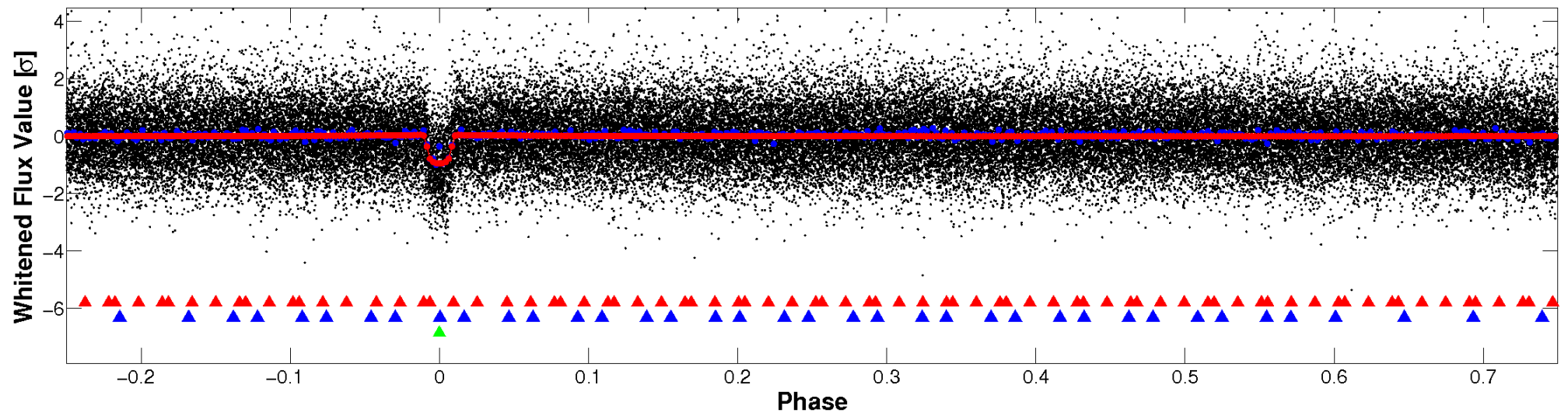


Non-Whitened Vs. Whitened Light Curve

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

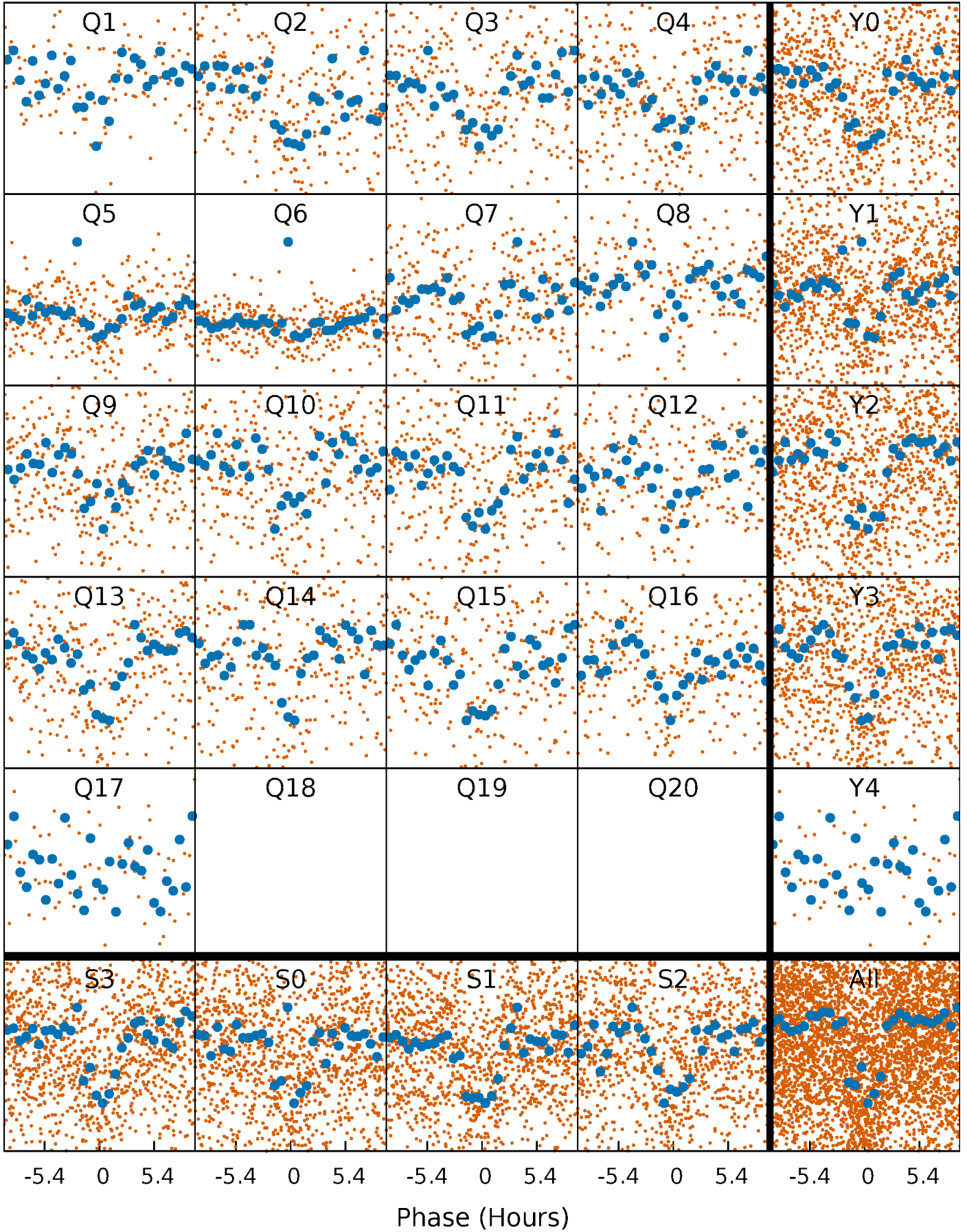


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



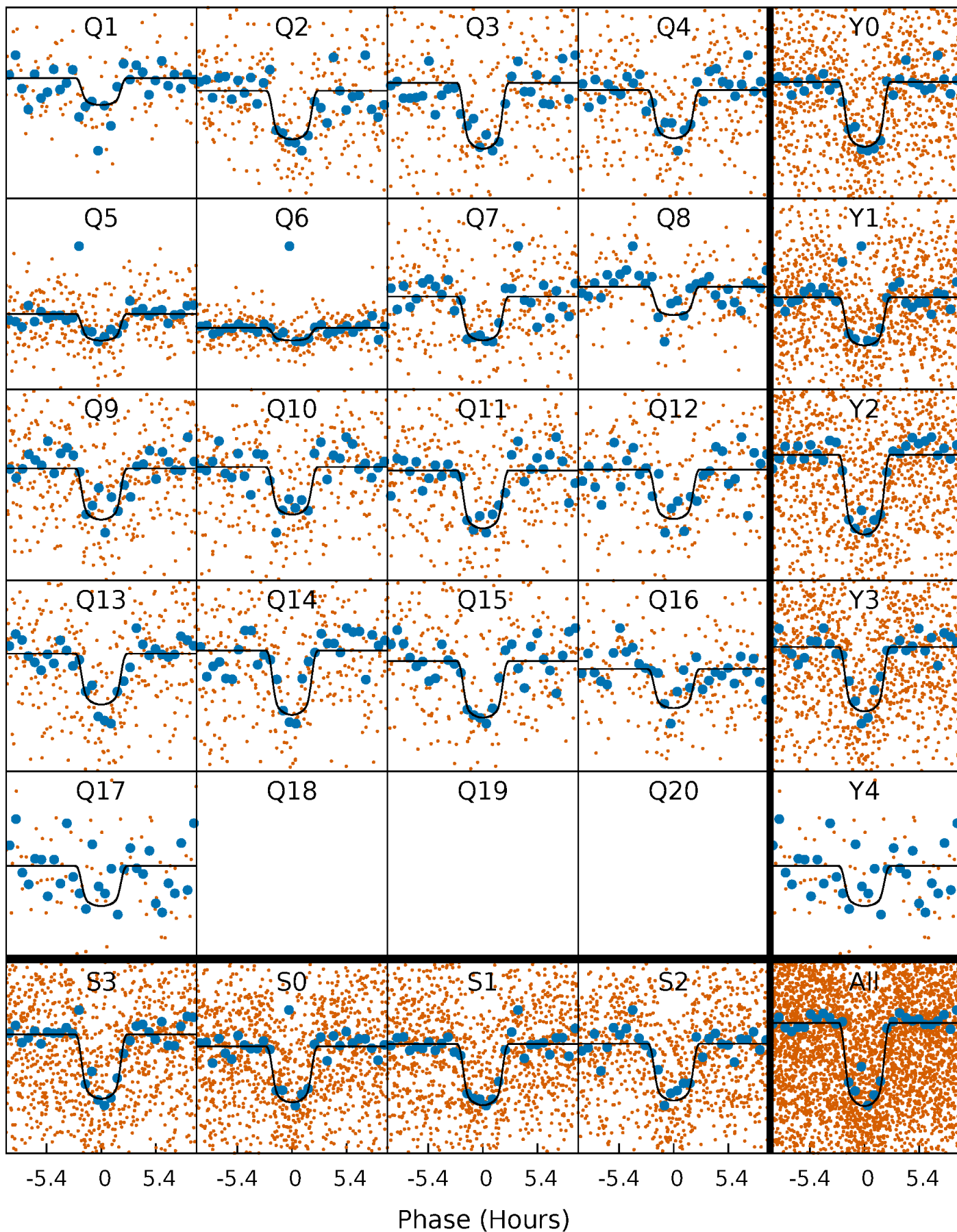
PDC Quarter-Phased Transit Curves

TCE 005358241-03 P= 9.752006 Days $T_0=138.781608$ (BKJD)



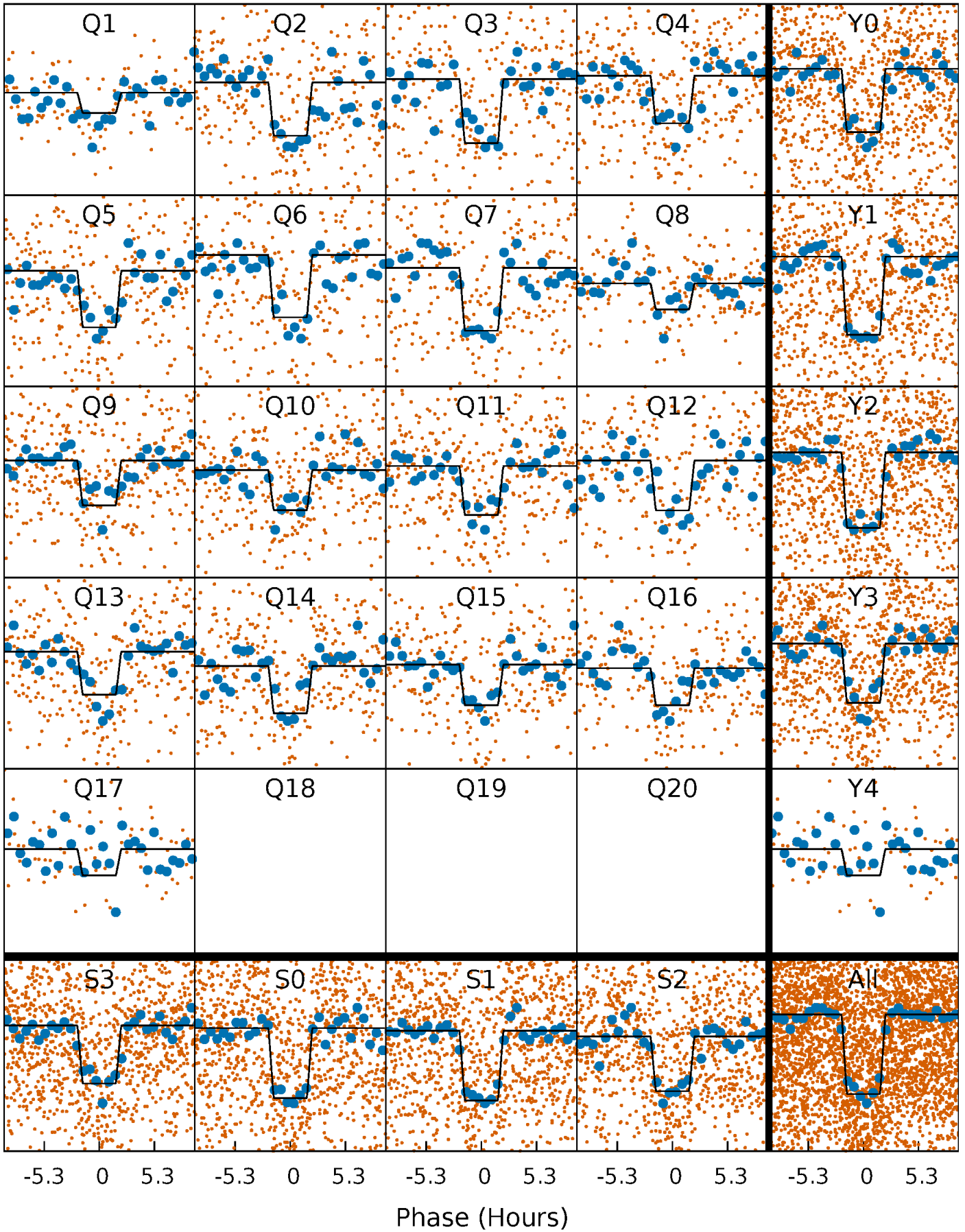
DV Quarter-Phased Transit Curves

TCE 005358241-03 P= 9.752006 Days $T_0=138.781608$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

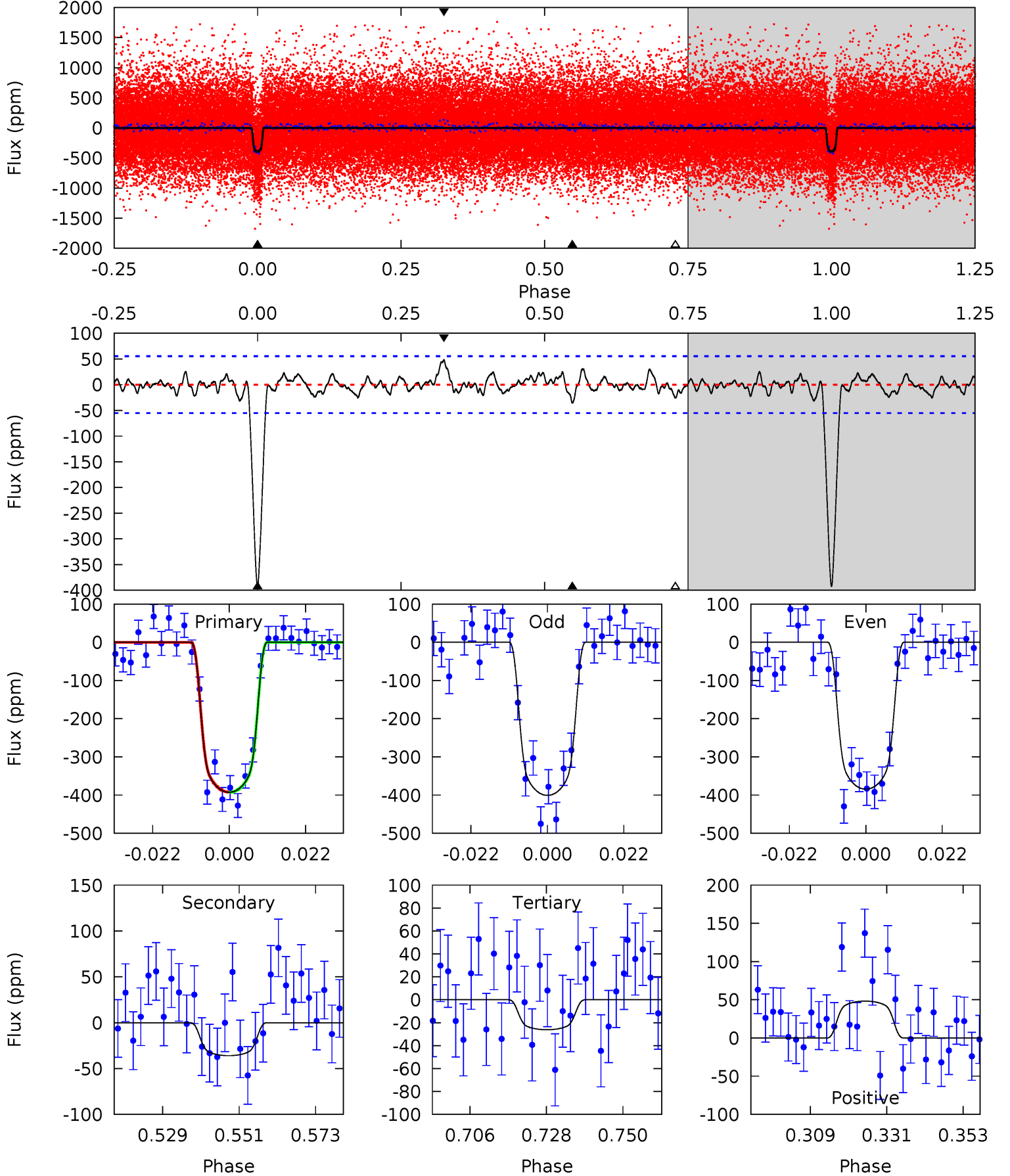
TCE 005358241-03 P= 9.751965 Days $T_0=138.782743$ (BKJD)



DV Model-Shift Uniqueness Test

005358241-03, P = 9.752006 Days, E = 129.029602 Days

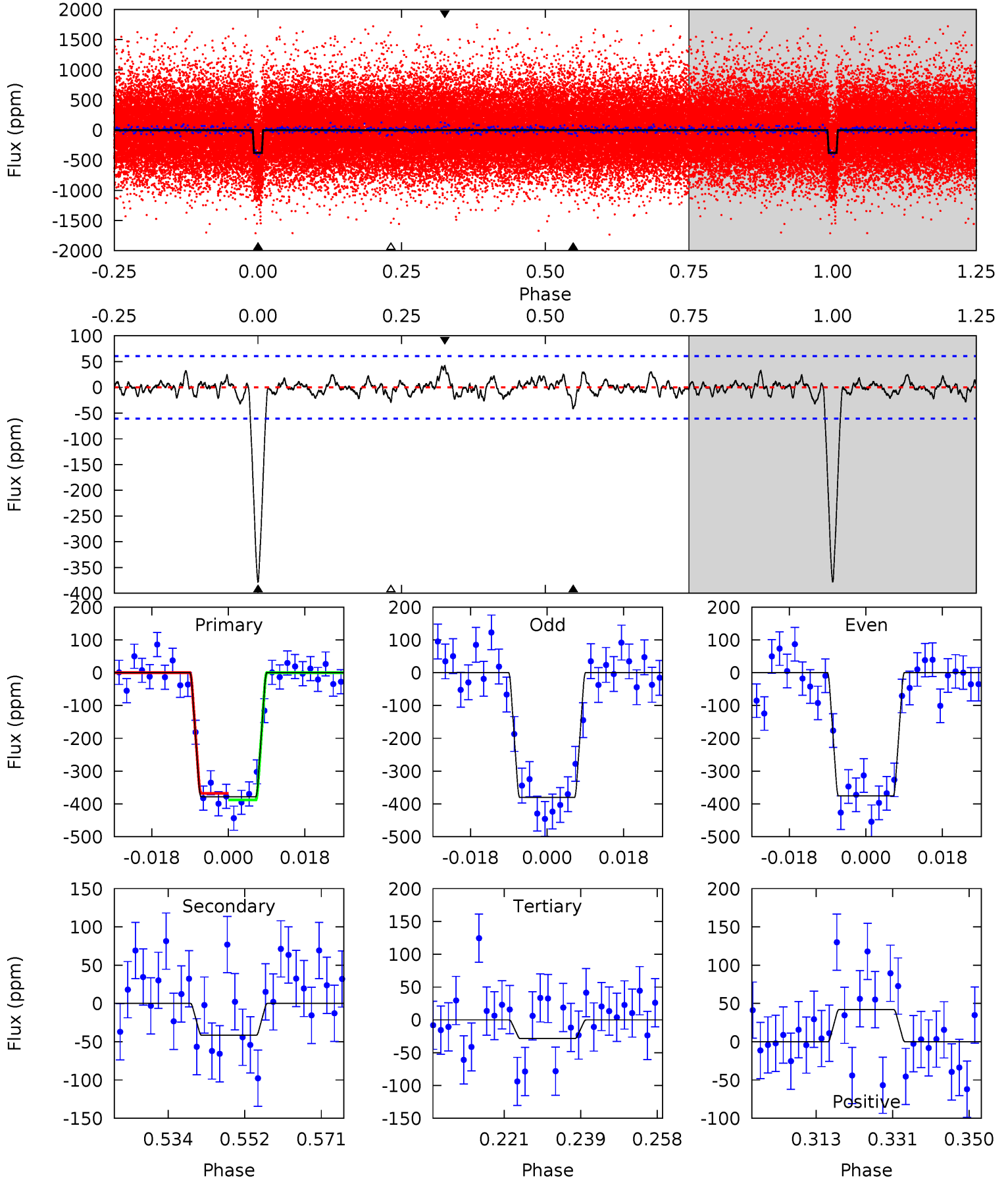
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.6	3.17	2.30	4.26	4.87	2.29	1.07	32.3	30.3	0.87	-1.09	0.72	0.84	0.11	0.04



Alt Model-Shift Uniqueness Test

005358241-03, P = 9.751965 Days, E = 129.030778 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.6	3.35	2.30	3.38	4.91	2.36	0.91	28.3	27.2	1.06	-0.03	0.19	0.95	0.10	0.78



Stellar Parameters For KIC 005358241

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5775^{+78}_{-78}	$4.405^{+0.066}_{-0.123}$	$0.160^{+0.150}_{-0.150}$	$1.053^{+0.161}_{-0.094}$	$1.026^{+0.062}_{-0.062}$	$1.237^{+0.328}_{-0.439}$
	+1%/-1%	+1%/-3%	+94%/-94%	+15%/-9%	+6%/-6%	+27%/-35%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 005358241-03 / KOI 0829.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-36 ± 11	$2.71^{+0.27}_{-0.22}$	1224^{+50}_{-38}	3424^{+172}_{-220}	21^{+9}_{-7}
Alt.	-41 ± 12	$2.28^{+0.25}_{-0.19}$	1225^{+55}_{-37}	3720^{+177}_{-235}	35^{+13}_{-12}

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 $A_{obs} \gg 1.0$

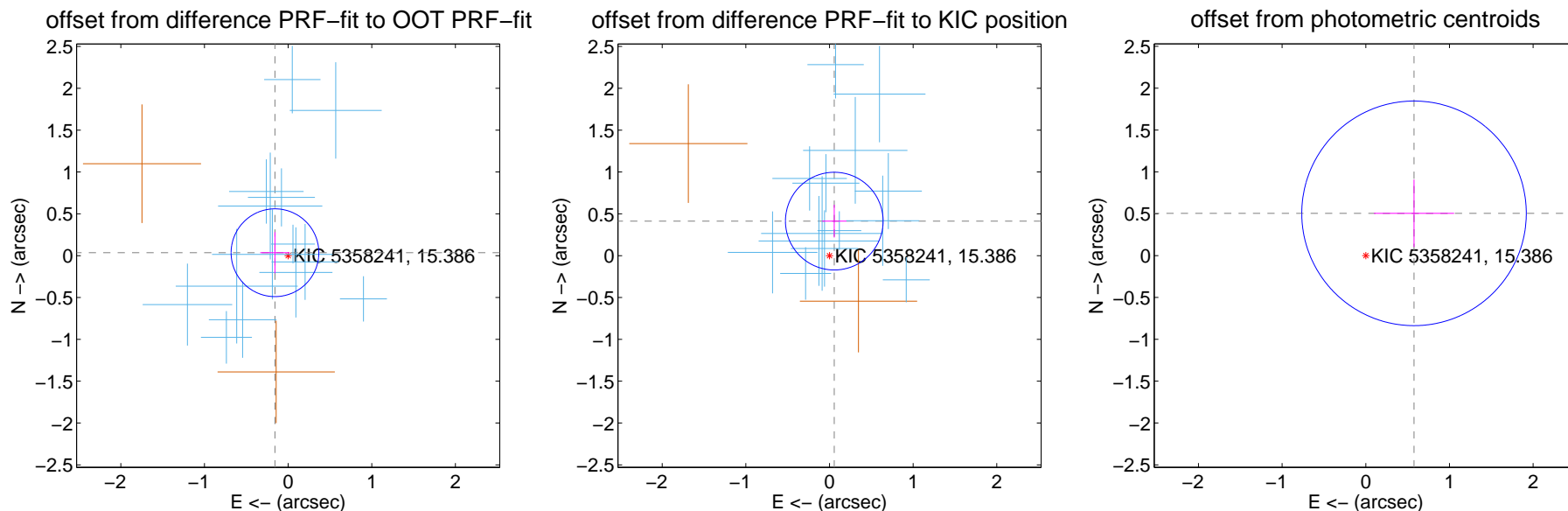
DV Centroid Data

Supplemental centroid analysis for 005358241-03. Kepler magnitude: 15.39. Transit SNR 26.22

There are 14 quarters with good PRF difference image offsets

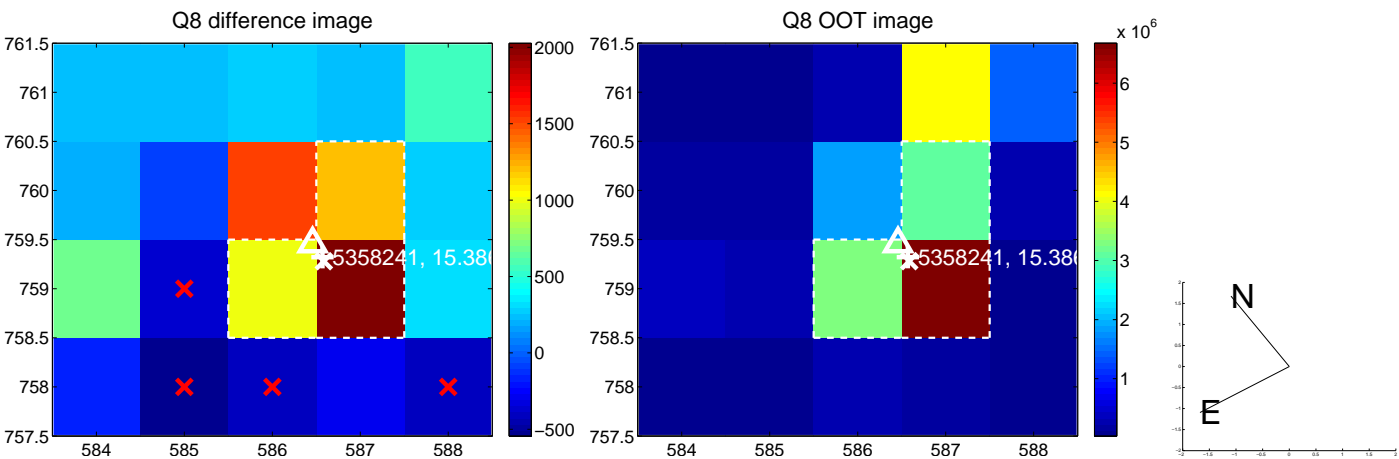
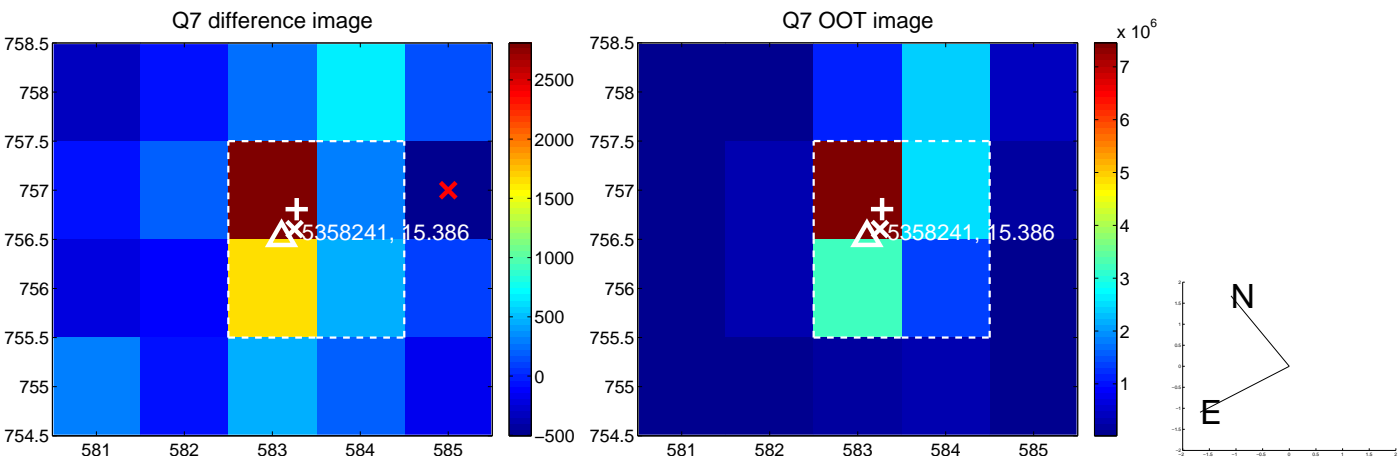
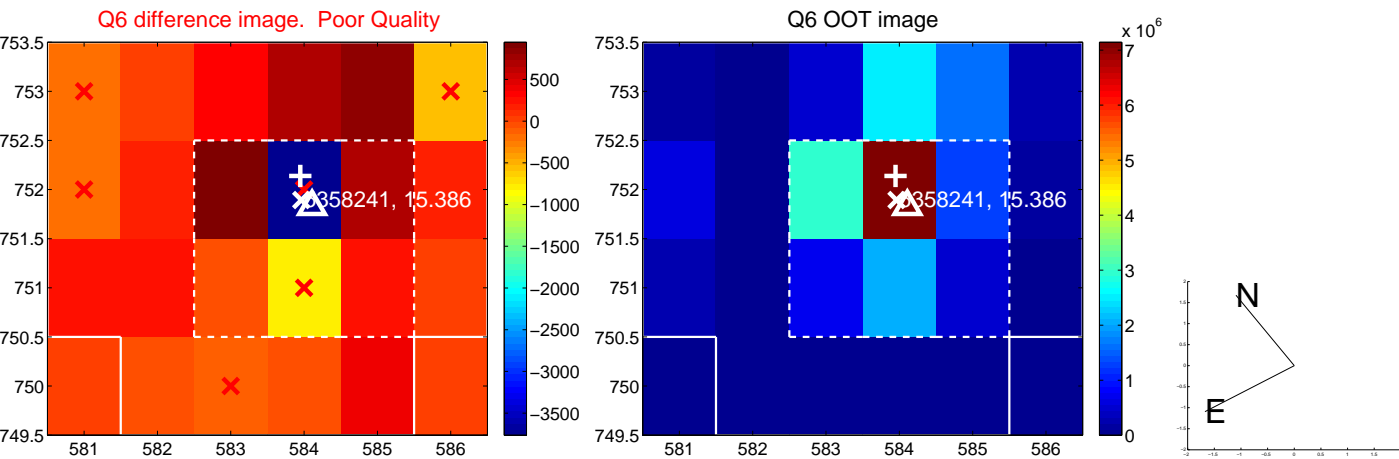
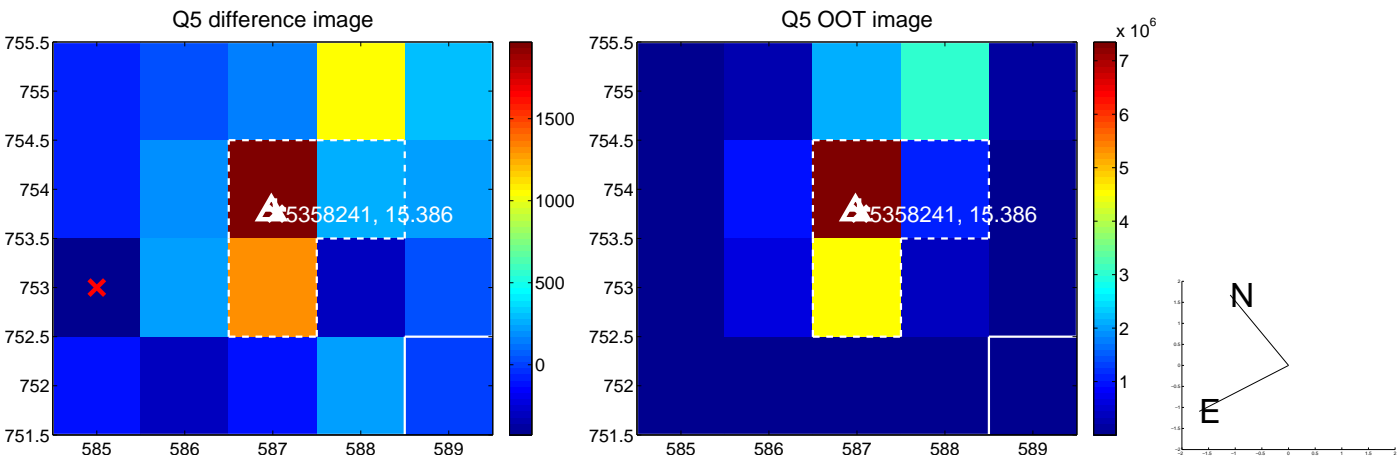
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.161 ± 0.175	0.92	0.157 ± 0.176	0.035 ± 0.245
PRF-fit source offset from KIC position	0.417 ± 0.195	2.14	-0.057 ± 0.145	0.413 ± 0.195
photometric centroid source offset	0.77 ± 0.45	1.71	-0.58 ± 0.48	0.50 ± 0.40

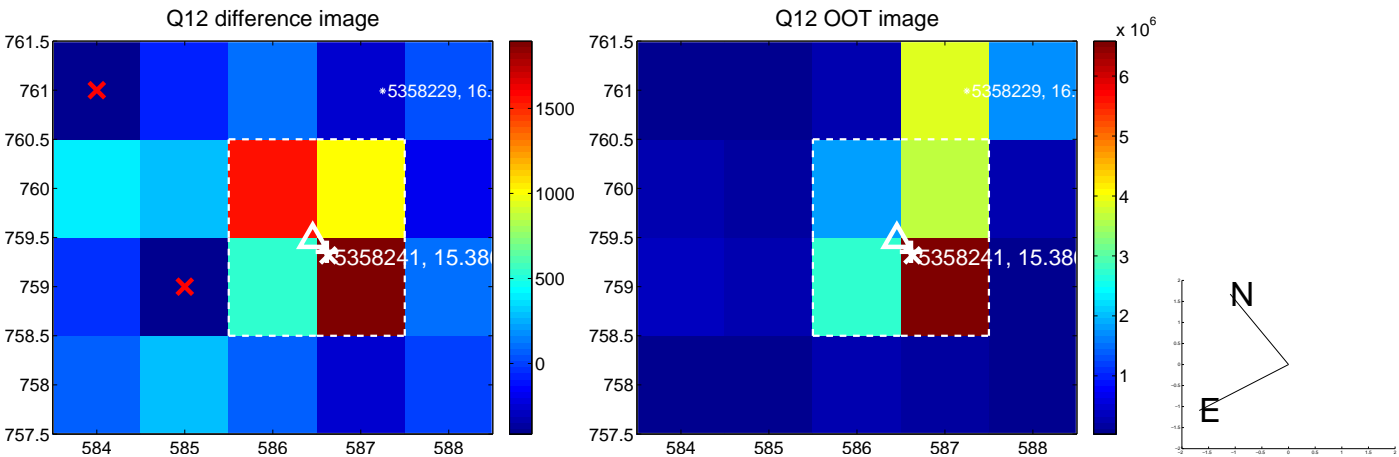
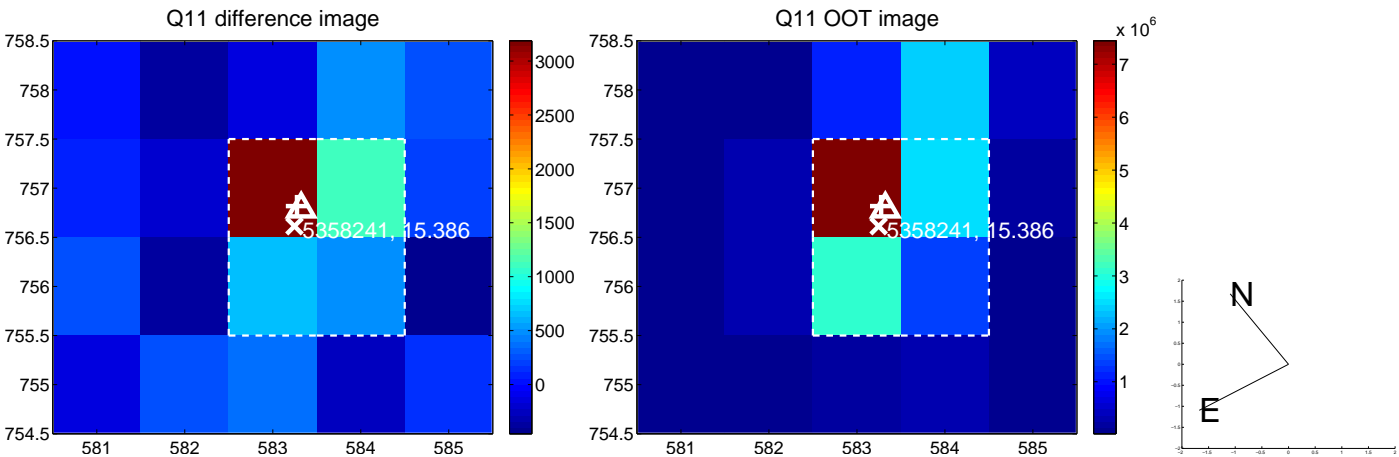
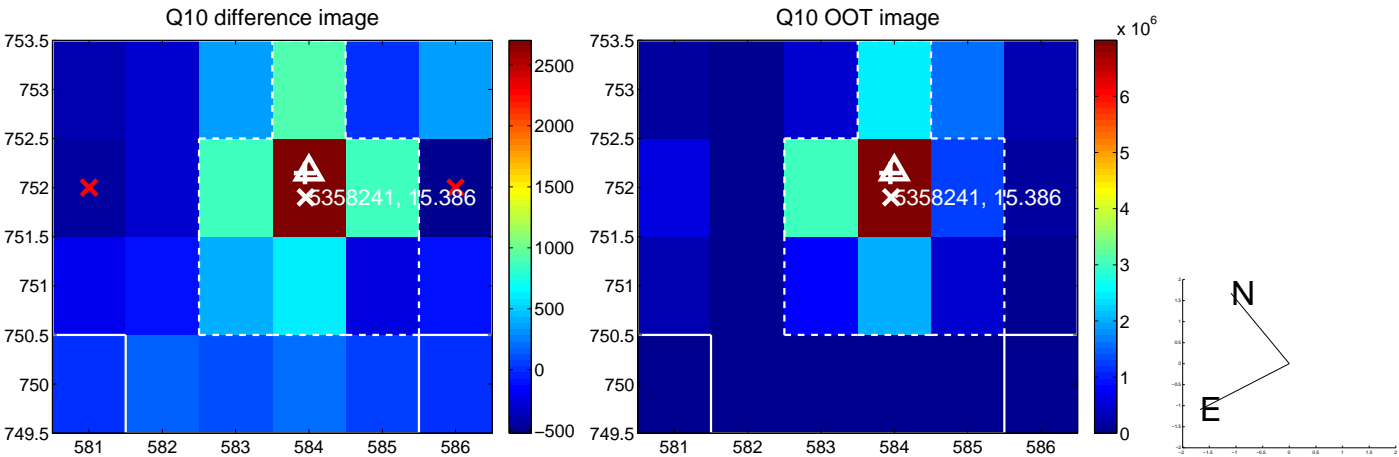
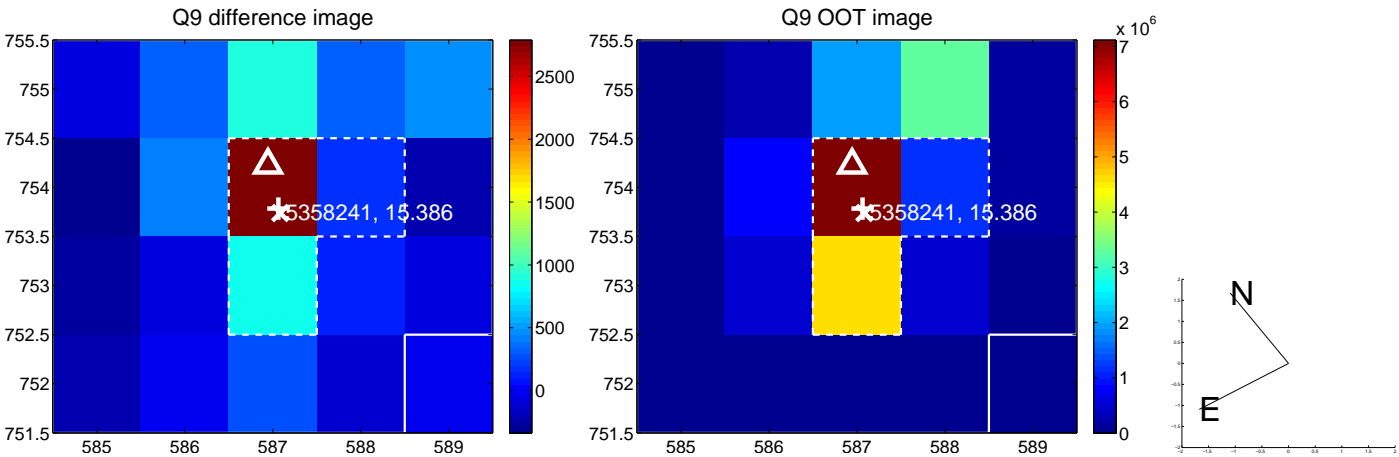


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

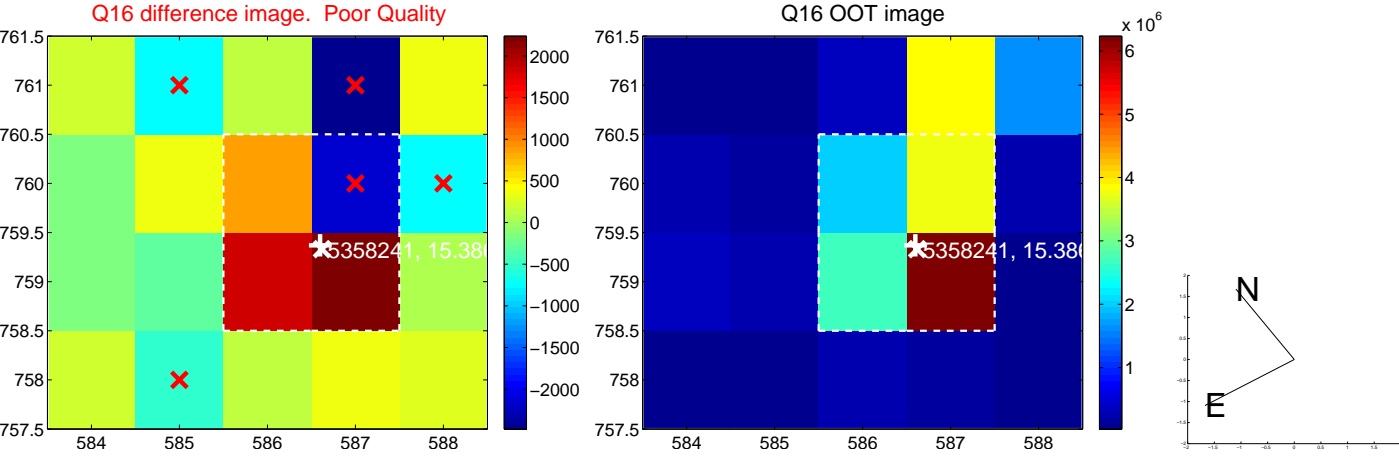
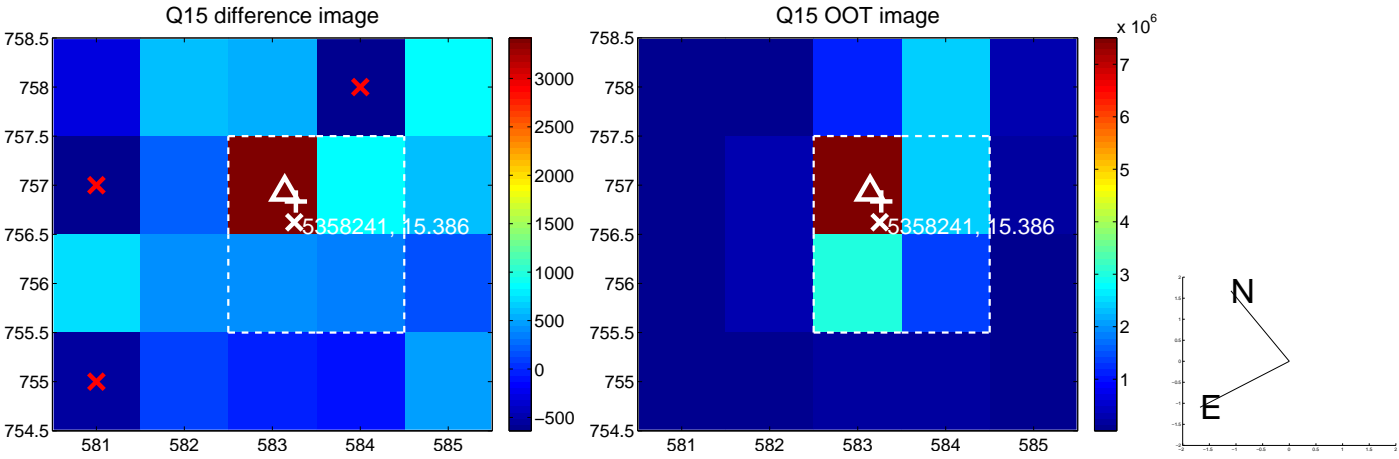
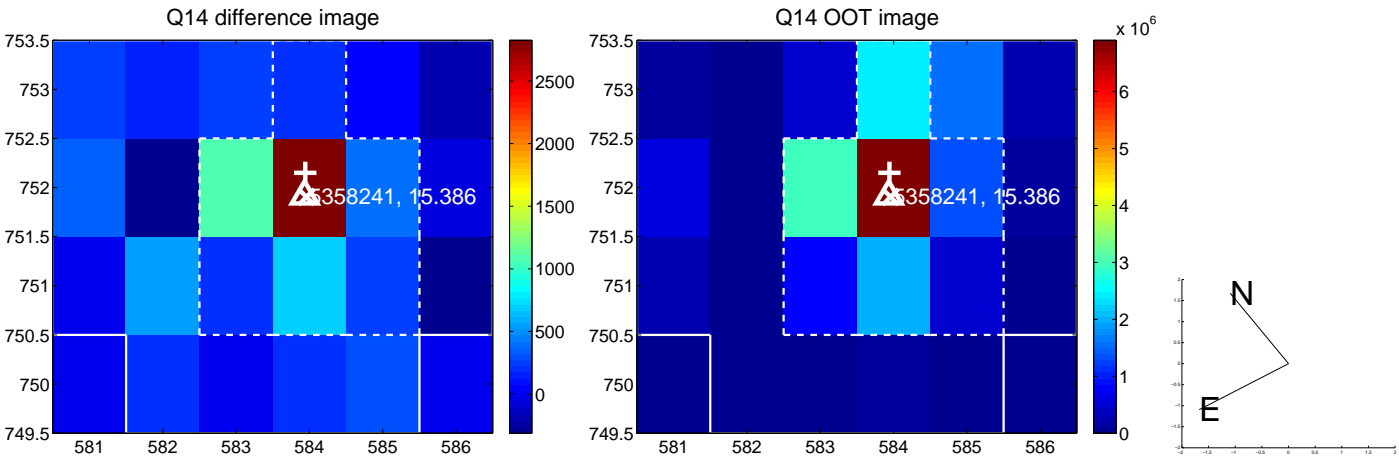
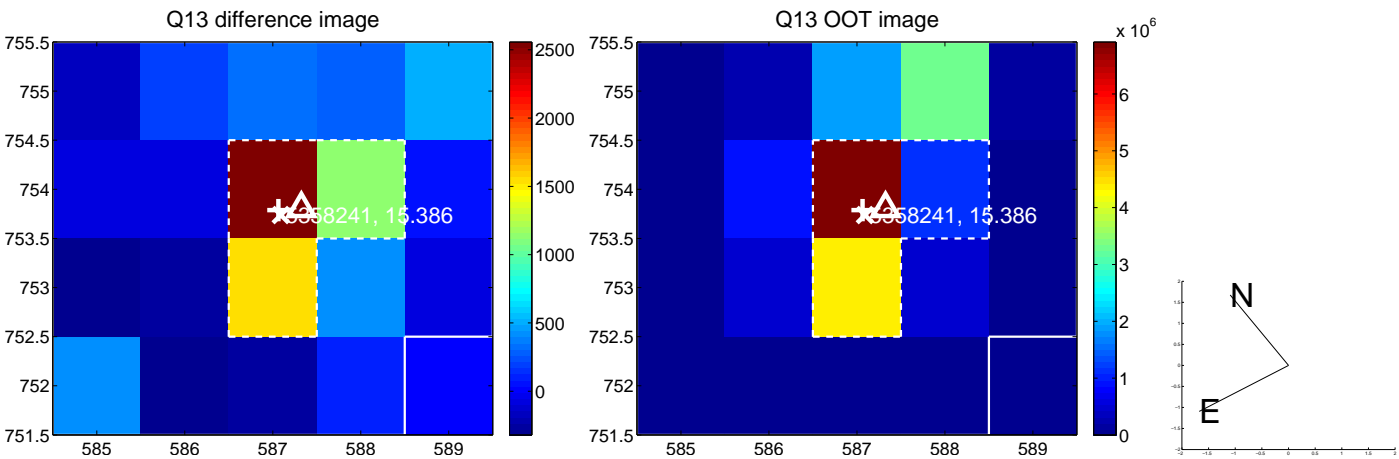
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



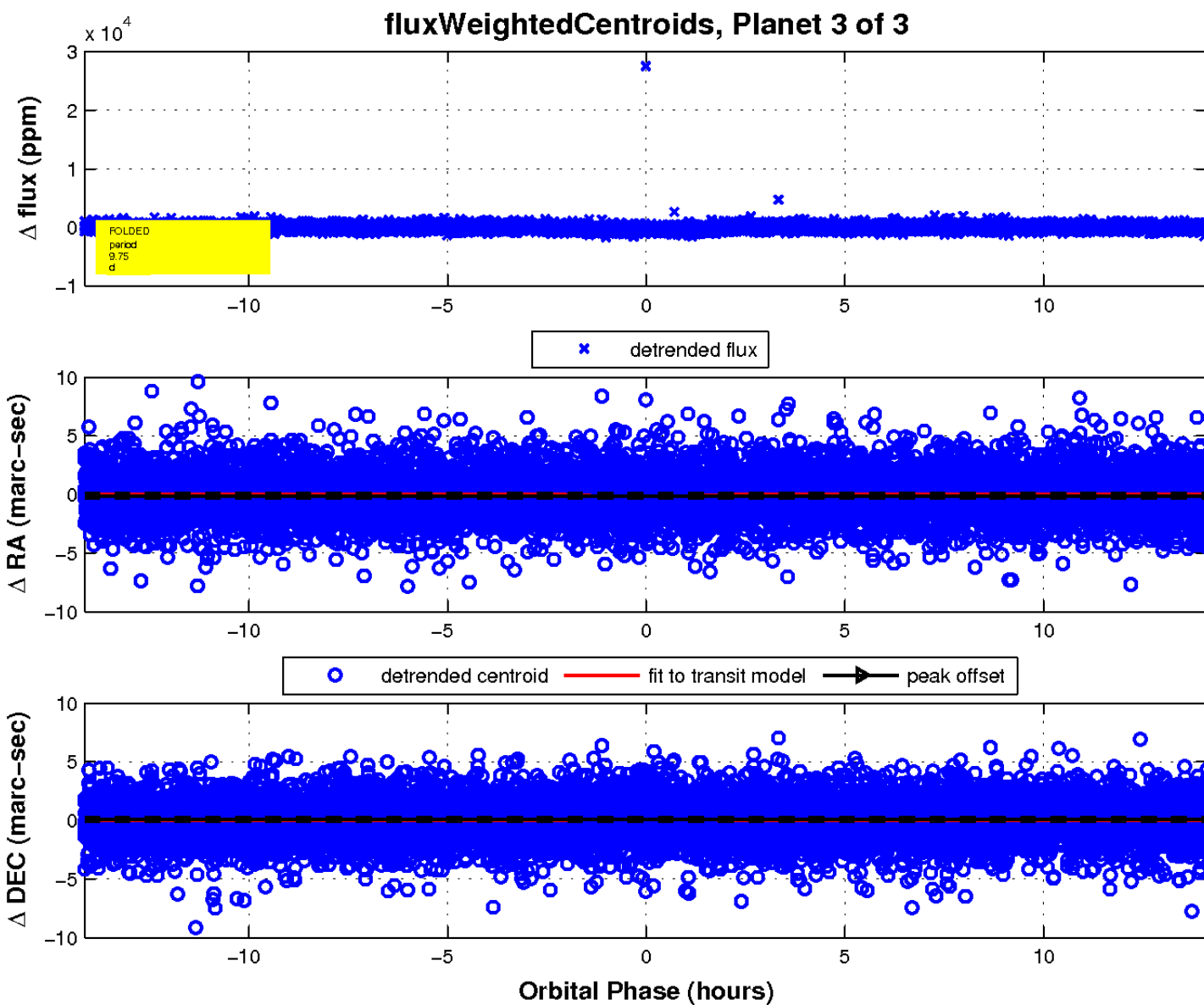
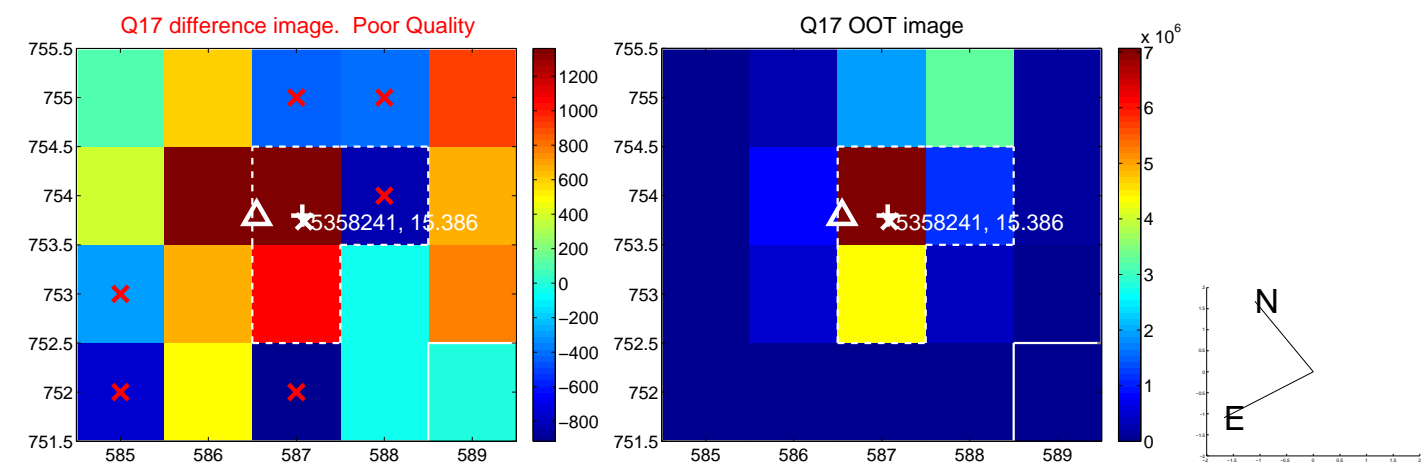
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

