

# Variable Names in VMEC

netCDF name	description	half/full mesh?	FORTTRAN name	DataType
version_	VMEC Version		version	double
input_extension	Input file extension		extension	CHAR x 100
mgrid_file	MGRID file		mgrid	CHAR x 200
wb	Magnetic Energy		magen	double
wp	Thermal/kinetic Energy		therm	double
gamma	Gamma (ratio of specific heats)		gam	double
rmax_surf	Maximum R		maxr	double
rmin_surf	Minimum R		minr	double
zmax_surf	Maximum Z		maxz	double
nfp	Field Periods		fp	int
ns	Radial nodes		radnod	int
mpol	Poloidal modes		polmod	int
ntor	Toroidal modes		tormod	int
mnmax	Fourier modes		maxmod	int
mnmax_nyq	Fourier modes (Nyquist)		maxmod_nyq	int
niter	Max iterations		maxit	int
itfsq	Actual iterations		actit	int
lasym lasym__logical__	Asymmetry		asym	int
lrecon lrecon__logical__	Reconstruction		recon	int
lrfp__logical__				int
lfreeb lfreeb__logical__	Free boundary		free	int
ier_flag	Error flag		error	int
aspect	Aspect ratio		aspect	double
betatotal	Total beta		beta	double
betapol	Poloidal beta		pbeta	double
betator	Toroidal beta		tbeta	double
betaxis	Beta axis		abeta	double
b0	RB-t over R axis		b0	double
rbtor0	RB-t axis		rbt0	double
rbtor	RB-t edge		rbt1	double
signgs	Sign jacobian		sgs	int
lonLarmor	Ion Larmor radius		lar	double
volavgB	avg mod B		modB	double
ctor	Toroidal current		ctor	double
Aminor_p	minor radius		amin	double
Rmajor_p	major radius		Rmaj	double
volume_p	Plasma volume		vol	double
imse	Number of MSE points		mse	
itse	Number of Thompson scattering points		thom	
am	Specification parameters for mass(s)		am	
ac	Specification parameters for <J>(s)		ac	
ai	Specification parameters for iota(s)		ai	
pmass_type	Profile type specifier for mass(s)		pmass_type	
pcurr_type	Profile type specifier for <J>(s)		pcurr_type	
piota_type	Profile type specifier for iota(s)		piota_type	
am_aux_s	Auxiliary-s parameters for mass(s)		am_aux_s	
am_aux_f	Auxiliary-f parameters for mass(s)		am_aux_f	
ac_aux_s	Auxiliary-s parameters for <J>(s)		ac_aux_s	
ac_aux_f	Auxiliary-f parameters for <J>(s)		ac_aux_f	
ai_aux_s	Auxiliary-s parameters for iota(s)		ai_aux_s	
ai_aux_f	Auxiliary-f parameters for iota(s)		ai_aux_f	
xm	Poloidal mode numbers		pmod	
xn	Toroidal mode numbers		tmod	
xm_nyq	Poloidal mode numbers (Nyquist)		pmod_nyq	
xn_nyq	Toroidal mode numbers (Nyquist)		tmod_nyq	
raxis_cc	raxis (cosnv)		racc	
zaxis_cs	raxis (sinnv)		racs	
raxis_cs	zaxis (sinnv)		zacs	
zaxis_cc	zaxis (cosnv)		zacc	
iotaf	iota	full mesh	iotaf	
q-factor	q-factor	full mesh	qfact	
presf	pressure	full mesh	presf	
phi	Toroidal flux	full mesh	phi	
hipf	d(phi)/ds: Toroidal flux deriv	full mesh	hipf	

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chi	Poloidal flux	full mesh	chi	
chipf	d(chi)/ds: Poroidal flux deriv	full mesh	chipf	
jcuru	j dot gradu => poloidal current density	full mesh	jcuru	
jcurv	j dot gradv => toroidal current density	full mesh	jcurv	
iotas	iota	half mesh	iotah	
mass	mass	half mesh	mass	
pres	pressure	half mesh	presh	
beta_vol	beta	half mesh	betah	
buco	bsubu	half mesh	buco	
bvco	bsubv	half mesh	bvco	
vp	volume deriv	half mesh	vp	
specw	Spectral width	half mesh	specw	
phips	tor flux deriv over 2pi	half mesh	phip	
jdotb	J dot B		jdotb	
bdotgradv	B dot grad v		bgrv	
DMerc	Mercier criterion		merc	
DShear	Shear Mercier		mshear	
DWell	Well Mercier		mwell	
DCurr	Current Mercier		mcurr	
DGeod	Geodesic Mercier		mgeo	
equif	Average force balance		equif	
fsqt	Residual decay		fsq	
wdot	Wdot decay		wdot	
extcur	External coil currents		extcur	
fsqr	Residual decay - radial		fsqr	
fsqz	Residual decay - vertical		fsqz	
fsql	Residual decay - hoop		fsql	
ftolv	Residual decay - requested		ftolv	
curlabel	External current names		curlab	
rmnc	cosmn component of cylindrical R	full mesh	rmnc	
zmns	sinmn component of cylindrical Z	full mesh	zmns	
lmns	sinmn component of lambda	half mesh	lmns	
gmnc	cosmn component of jacobian ( sqrt(g) )	half mesh	gmnc	
bmnc	cosmn component of mod-B	half mesh	bmnc	
bsubumnc	cosmn covariant u-component of B	half mesh	bsubumnc	
bsubvmnc	cosmn covariant v-component of B	half mesh	bsubvmnc	
bsubsmns	sinmn covariant s-component of B	full mesh	bsubsmns	
bsubumnc_sur	cosmn bsubu of B	surface	bsubumnc_sur	
bsubvmnc_sur	cosmn bsubv of B	surface	bsubvmnc_sur	
bsupumnc_sur	cosmn bsupu of B	surface	bsupumnc_sur	
bsupvmnc_sur	cosmn bsupv of B	surface	bsupvmnc_sur	
bsupumnc	BSUPUmnc (contravariant poloidal B)	half mesh	bsupumnc	
bsupvmnc	BSUPVmnc (contravariant toroidal B)	half mesh	bsupvmnc	
rmns	sinmn component of cylindrical R	full mesh	rmns	
zmnc	cosmn component of cylindrical Z	full mesh	zmnc	
lmnc	cosmn component of lambda	half mesh	lmnc	
gmns	sinmn component of jacobian	half mesh	gmns	
bmns	sinmn component of mod-B	half mesh	bmns	
bsubumns	sinmn covariant u-component of B	half mesh	bsubumns	
bsubvmns	sinmn covariant v-component of B	half mesh	bsubvmns	
bsubsmnc	cosmn covariant s-component of B	full mesh	bsubsmnc	
bsubumns_sur	sinmn bsubu of B	surface	bsubumns_sur	
bsubvmns_sur	sinmn bsubv of B	surface	bsubvmns_sur	
bsupumns_sur	sinmn bsupu of B	surface	bsupumns_sur	
bsupvmns_sur	sinmn bsupv of B	surface	bsupvmns_sur	
bsupumns	BSUPUmns (contravariant poloidal B)	half mesh	bsupumns	
bsupvmns	BSUPVmns (contravariant toroidal B)	half mesh	bsupvmns	
rbc	Initial boundary R cos(mu-nv) coefficients		rbc	
zbs	Initial boundary Z sin(mu-nv) coefficients		zbs	
rbs	Initial boundary R sin(mu-nv) coefficients		rbs	
zbc	Initial boundary Z cos(mu-nv) coefficients		zbc	
potvac	Vacuum Potential on Boundary		potvac	
FOR ANIMEC				
wpar	Energy		wpar	
pparmnc	cosmn compoents of hot part. para. pressure		pparmnc	
ppermnc	cosmn compoents of hot part. perp. pressure		ppermnc	

# Variable Names in VMEC

hotdmnc	cosmn compoents of hot part. density		hotdmnc	
pbprmnc	cosmn compoents of hot part. para. pres. grad.		pbprmnc	
ppprmnc	cosmn compoents of hot part. perp. pres. grad.		ppprmnc	
sigmnc	cosmn firehose stability variable		sigmnc	
taumnc	cosmn mirror stability variable		taumnc	
pparmns	sinmn compoents of hot part. para. pressure		pparmns	
ppermns	sinmn compoents of hot part. perp. pressure		ppermns	
hotdmns	sinmn compoents of hot part. density		hotdmns	
pbprmns	sinmn compoents of hot part. para. pres. grad.		pbprmns	
ppprmns	sinmn compoents of hot part. perp. pres. grad.		ppprmns	
sigmns	sinmn firehose stability variable		sigmns	
taumns	sinmn mirror stability variable		taumns	
FOR FLOW				
machsqa	Mach # on axis (squared)		machsqa	
protmnc	cosmn components of pressure		protmnc	
protrsqmnc	cosmn component of rotational energy		protrsqmnc	
prprmnc	cosmn components of radial pressure gradient		prprmnc	
protmns	sinmn components of pressure		protmns	
protrsqmns	sinmn component of rotational energy		protrsqmns	
prprmns	sinmn components of radial pressure gradient		prprmns	
pmap	<p(sR)>		pmap	
omega	Toroidal Angular Freq.		omega	
tpotb	T_perp/T_parallel or T(flow)		tpotb	
see also	<a href="http://vmecwiki.pppl.wikispaces.net/Toroidal+Coordinates">http://vmecwiki.pppl.wikispaces.net/Toroidal+Coordinates</a>			
	<a href="https://ornl-fusion.github.io/stellinstall/vmec_equilibrium_sec.html">https://ornl-fusion.github.io/stellinstall/vmec_equilibrium_sec.html</a>			