

# Typische Variablen im PoWR-Code

## Dimensions:

MAXATOM = maximum number of atoms to be used

NATOM = actual number of atoms

NDDIM = maximum number of depth points to be used

ND = actual number of depth points

MAXMOD = maximum number of models to be used

NMOD = actual number of models

MAXXN = maximum number of depth points in fine arrays

MAXLAP = maximum number of lines

## Typical arguments:

NA = element index (according to occurrence in DATOM)

IMOD = model index

L = depth point (L = 1 is outer boundary)

NBL = line index

NUP,LOW = upper/lower level indices

IMOD = model index

Variable	TYPE/DIMENSION	UNITS	Meaning	routine(s)
ATMASS	REAL (MAXATOM)	u	ATMASS(NA) returns atomic mass of element index NA	FORMAL, DATOM
AVOIGT	REAL (MAXLAP, NDDIM)	?	Voigt parameter, including intrinsic broadening, pressure broadening (if activated), and doppler broadening	FORMAL, DATOM
DD_VDOP	REAL (NDDIM, MAXATOM, [MAXMOD])	km/s	DD_VDOP(L, NA, IMOD) returns VDOP at depth point L of element index NA (of model IMOD)	FORMAL
DD_VDOP_SQRD	REAL (NDDIM, MAXATOM, [MAXMOD])	(km/s) <sup>2</sup>	DD_VDOP(L, NA, IMOD) returns VDOP at depth point L of element index NA (of model IMOD)	FORMAL
DD_VDOP_FLAG	LOGICAL	None	.TRUE. if depth-dependent VDOP is activated, .FALSE. otherwise	VDOP_STRUCT, PREPRAY, ZONEINT
DD_VDOP_LINE	CHARACTER	None	String for decoding VDOP line in FORMAL_CARDS	DECFORM, VDOP_STRUCT
DD_VDOPDU	REAL (NDDIM, MAXATOM, [MAXMOD])	Doppler	same as DD_VDOP in Doppler units	FORMAL
DD_VDOPDU_RAY	REAL (NDADDIM, MAXATOM, [MAXMOD])	Doppler	DD_VDOPDU_RAY(+Z) = DD_VDOPDU(+Z) = The reflection of DD_VDOPDU along a ray	PREPRAY, ZONEINT
DD_VDOPDU_FINE_NORMFAC	REAL (MAXXN, MAXATOM)	1/ Doppler	Gaussian normalizing constant for fine depth array = 1 / sqrt(pi) / DD_VDOPDU(L,NA)	ZONEINT, VDOP_STRUCT

Variable	TYPE/DIMENSION	UNITS	Meaning	routine(s)
DD_VDOPDU_FINE	REAL (MAXXN, MAXATOM)	Doppler	the interpolation of DD_VDOPDU in the fine depth array of subroutine ZONEINT	ZONEINT, VDOP_STRUCT
DD_VDOPDU_FINE_SQRD	REAL (MAXXN, MAXATOM)	Doppler <sup>2</sup>	squared DD_VDOPDU_FINE	ZONEINT, VDOP_STRUCT
INDLOW	INTEGER (MAXIND)	None	INDLOW(LINE_INDEX) Returns index of lower level of LINE	STEAL, FORMAL, ?
INDNUP	INTEGER (MAXIND)	None	INDUP(LINE_INDEX) Returns index of upper level of LINE	STEAL, FORMAL, ?
IND_ORIGLEV	INTEGER (NDIM)	None	IND_ORIGLEV(LEVEL_INDEX) returns index of "mother level" of a split line (identical if not split)	DATOM, MULTIPLE, PREFORM, STARKBROAD
IND_ELLINE	INTEGER (NDIM)	None	IND_ELLINE(NBL) returns index NA of element	FORMAL, ZONEINT
KODAT	INTEGER (MAXATOM)	None	KODAT(Z) returns index of occurrence of element in DATOM with core charge Z (0 if element excluded)	DATOM, ?
NOM	INTEGER (NDIM)	None	NOM(NUP,LOW) returns index of occurrence of element in DATOM corresponding to LEVEL	FORMAL, DATOM
RADIUS	REAL(NDDIM, MAXMOD)	R <sub>*</sub>	RADIUS(L,IMOD) gives the radius at L in stellar units	ALL
RCOROTLINE	CHARACTER	None	String for decoding co-rotation radius line in FORMAL_CARDS	DECFORM, ROTATION_PREP
VELO	REAL (NDDIM,[MAXMOD])	km/s	VELO(L) returns velocity at depth point L in km/s	ALL

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