

ADAS Subroutine xxdata_16

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      SUBROUTINE xxdata_16( IUNIT , DSNAME ,
&                          NSTORE , NTDIM ,
&                          ESYM   , IZ0   ,
&                          NBSEL  , ISELA ,
&                          IZ      , IZ1   ,
&                          CWAVEL , CIION  , CICODE , CISCRP , CITYPE ,
&                          ITA     ,
&                          TMA     , TETA  , DENSA  , GCF
&                          )
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C-----
C
C ***** FORTRAN77 SUBROUTINE: E7DATA *****
C
C PURPOSE: TO FETCH DATA FROM INPUT CONTRIBUTION FUNCTIONS
C           OF AN ELEMENT AND ITS IONS.
C           (MEMBER STORED IN IONELEC.DATA - MEMBER PREFIX 'GCF#').
C
C CALLING PROGRAM: ADAS507/SGCF
C
C DATA:
C
C           UP TO 'NSTORE' SETS (DATA-BLOCKS) OF DATA MAY BE READ FROM
C           THE FILE - EACH BLOCK FORMING A COMPLETE SET OF CONTRIBUTION
C           FUNCTION VALUES FOR GIVEN TEMPERATURES.
C           EACH DATA-BLOCK IS ANALYSED INDEPENDENTLY OF ANY OTHER
C           DATA-BLOCK.
C
C           THE UNITS USED IN THE DATA FILE ARE TAKEN AS FOLLOWS:
C
C           MODEL PARAMETER      : UNSPECIFIED
C           DENSITIES             : CM-3
C           TEMPERATURES         : EV
C           CONTR. FUNCTION      : CM**3 S-1
C
C SUBROUTINE:
C
C INPUT : (I*4)  IUNIT   = UNIT TO WHICH INPUT FILE IS ALLOCATED.
C INPUT : (C*44) DSNAME  = MVS DATA SET NAME OF DATA SET BEING READ
C
C INPUT : (I*4)  NSTORE  = MAXIMUM NUMBER OF INPUT DATA-BLOCKS THAT
C                       CAN BE STORED.
C INPUT : (I*4)  NTDIM   = MAX NUMBER OF ELECTRON TEMPERATURES ALLOWED
C
C OUTPUT: (C*2)  ESYM    = READ - RADIATING ION - ELEMENT SYMBOL
C OUTPUT: (I*4)  IZ0     = READ - RADIATING ION - NUCLEAR CHARGE
C
C OUTPUT: (I*4)  NBSEL   = NUMBER OF DATA-BLOCKS ACCEPTED & READ IN.
C OUTPUT: (I*4)  ISELA() = READ - DATA-SET DATA-BLOCK ENTRY INDICES
C                       DIMENSION: DATA-BLOCK INDEX
C
C OUTPUT: (I*4)  IZ()    = READ - RADIATING ION CHARGE
C                       ( SET TO -1 IF WHOLE ELEMENT)
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C          DIMENSION: DATA-BLOCK INDEX
C OUTPUT: (I*4)  IZ1()  = READ - RADIATING ION CHARGE +1
C                   ( SET TO 1 IF WHOLE ELEMENT)
C          DIMENSION: DATA-BLOCK INDEX
C
C OUTPUT: (C*10) CWAVEL() = READ - WAVELENGTH (ANGSTROMS)
C          DIMENSION: DATA-BLOCK INDEX
C OUTPUT: (C*5)  CIION() = READ - RADIATING ION (AS <ESYM>+(IZ())> )
C          DIMENSION: DATA-BLOCK INDEX
C OUTPUT: (C*8)  CICODE() = READ - SOURCE PROGRAM
C          DIMENSION: DATA-BLOCK INDEX
C OUTPUT: (C*8)  CISCRP() = READ - SOURCE SCRIPT
C          DIMENSION: DATA-BLOCK INDEX
C OUTPUT: (C*5)  CITYPE() = READ - RADIATION TYPE
C          DIMENSION: DATA-BLOCK INDEX
C
C OUTPUT: (I*4)  ITA()  = READ - NUMBER OF ELECTRON TEMPERATURES
C          DIMENSION: DATA-BLOCK INDEX
C
C OUTPUT: (R*8)  TMA(,)  = READ - MODEL PARAMETER (UNITS: UNDEFINED)
C                   1st DIMENSION: ELECTRON TEMPERATURE INDEX
C                   2nd DIMENSION: DATA-BLOCK INDEX
C
C OUTPUT: (R*8)  TETA(,) = READ - ELECTRON TEMPERATURES (UNITS: EV)
C                   1st DIMENSION: ELECTRON TEMPERATURE INDEX
C                   2nd DIMENSION: DATA-BLOCK INDEX
C
C OUTPUT: (R*8)  DENSA(,) = READ - ELECTRON DENSITIES (UNITS: CM-3)
C                   1st DIMENSION: ELECTRON TEMPERATURE INDEX
C                   2nd DIMENSION: DATA-BLOCK INDEX
C
C OUTPUT: (R*8)  GCF(,)  =READ - FULL SET OF GENERALISED CONTRIBUTION
C                   FUNCTIONS (CM**3 S-1)
C                   1st DIMENSION: ELECTRON TEMPERATURE INDEX
C                   2nd DIMENSION: DATA-BLOCK INDEX
C
C          (I*4)  I4EIZ0  = FUNCTION - (SEE ROUTINES SECTION BELOW)
C          (I*4)  I4FCTN  = FUNCTION - (SEE ROUTINES SECTION BELOW)
C          (I*4)  I4UNIT  = FUNCTION - (SEE ROUTINES SECTION BELOW)
C          (I*4)  IBLK    = ARRAY INDEX: DATA-BLOCK INDEX
C          (I*4)  ITT     = ARRAY INDEX: ELECTRON TEMPERATURE INDEX
C          (I*4)  NTNUM   = NUMBER OF ELECTRON TEMPERATURES FOR CURRENT
C                   DATA-BLOCK
C          (I*4)  IABT    = RETURN CODE FROM 'I4FCTN'
C          (I*4)  IPOS1   = GENERAL USE STRING INDEX VARIABLE
C          (I*4)  IPOS2   = GENERAL USE STRING INDEX VARIABLE
C
C          (R*8)  R8FCTN  = FUNCTION - (SEE ROUTINES SECTION BELOW)
C
C          (L*4)  LBEND   = IDENTIFIES WHETHER THE LAST OF THE INPUT
C                   DATA SUB-BLOCKS HAS BEEN LOCATED.
C                   (.TRUE. => END OF SUB-BLOCKS REACHED)
C

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C (C*1) CSLASH = '/' - DELIMITER FOR 'XXHKEY'
 C (C*2) C2 = GENERAL USE TWO BYTE CHARACTER STRING
 C (C*4) CKEY1 = 'CODE' - INPUT BLOCK HEADER KEY
 C (C*6) CKEY2 = 'SCRIPT' - INPUT BLOCK HEADER KEY
 C (C*4) CKEY3 = 'TYPE' - INPUT BLOCK HEADER KEY
 C (C*4) CKEY4 = 'ISEL' - INPUT BLOCK HEADER KEY
 C (C*10) C10 = GENERAL USE TEN BYTE CHARACTER STRING
 C (C*80) C80 = GENERAL USE 80 BYTE CHARACTER STRING FOR
 C THE INPUT OF DATA-SET RECORDS.
 C

C ROUTINES:

ROUTINE	SOURCE	BRIEF DESCRIPTION
XXHKEY	ADAS	OBTAIN KEY/RESPONSE STRINGS FROM TEXT
I4EIZ0	ADAS	INTEGER*4 FUNCTION - RETURNS Z0 FOR GIVEN ELEMENT SYMBOL
I4FCTN	ADAS	INTEGER*4 FUNCTION - CONVERT CHARACTER STRING TO INTEGER
I4UNIT	ADAS	INTEGER*4 FUNCTION - FETCH UNIT NUMBER FOR OUTPUT OF MESSAGES
R8FCTN	ADAS	REAL*8 FUNCTION - CONVERT CHARACTER STRING TO REAL*8

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 C

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C UPDATE:

CHARACTER*8	CICODE (NSTORE)	
CHARACTER*5	CIION (NSTORE)	
CHARACTER*8	CISCRP (NSTORE)	
CHARACTER*5	CITYPE (NSTORE)	
CHARACTER*10	CWAVEL (NSTORE)	
CHARACTER*80	DSNAME	
CHARACTER*2	ESYM	
INTEGER	ISELA (NSTORE),	ITA (NSTORE), IUNIT
INTEGER	IZ (NSTORE), IZ0,	IZ1 (NSTORE), NBSEL
INTEGER	NSTORE, NTDIM	
REAL*8	DENSA (NTDIM, NSTORE),	GCF (NTDIM, NSTORE)
REAL*8	TETA (NTDIM, NSTORE),	TMA (NTDIM, NSTORE)