

ADAS Subroutine xxdata_13

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subroutine xxdata_13( iunit , dsname ,
&                    nstore , ntdim , nddim ,
&                    iz0   , iz    , iz1   , esym  ,
&                    nbssel , isela ,
&                    cwavel , cfile , ctype  , cindm ,
&                    ita    , ida    ,
&                    teta   , teda   ,
&                    sxb
&                    )
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C
C ***** FORTRAN77 SUBROUTINE: xxdata_13 *****
C
C PURPOSE:  To fetch data from input ionisations/photon file
C           for a given emitting ion (element and charge).
C
C CALLING PROGRAM: ADAS503/ssxb
C
C DATA:    Up to 'nstore' sets (data-blocks) of data may be read from
C           the file - each block forming a complete set of ionizations
C           per photon values for given temp/density combination. Each
C           data-block is analysed independently of any other data-
C           block.
C
C           The units used in the data file are taken as follows:
C
C           Temperatures : eV
C           Densities    : cm-3
C
C SUBROUTINE:
C
C INPUT : (I*4)  IUNIT    = UNIT TO WHICH INPUT FILE IS ALLOCATED.
C
C           (I*4)  NSTORE  = MAXIMUM NUMBER OF INPUT DATA-BLOCKS THAT
C           CAN BE STORED.
C           (I*4)  NTDIM   = MAX NUMBER OF ELECTRON TEMPERATURES ALLOWED
C           (I*4)  NDDIM   = MAX NUMBER OF ELECTRON DENSITIES    ALLOWED
C
C OUTPUT: (I*4)  IZ0      = READ - EMITTING ION - NUCLEAR CHARGE
C           (I*4)  IZ      = READ - EMITTING ION - CHARGE
C           (I*4)  IZ1     = READ - EMITTING ION - CHARGE + 1
C           (C*2)  ESYM    = READ - EMITTING ION - ELEMENT SYMBOL
C
C           (I*4)  NBSEL   = NUMBER OF DATA-BLOCKS ACCEPTED & READ IN.
C           (I*4)  ISELA() = READ - DATA-SET DATA-BLOCK ENTRY INDICES
C           DIMENSION: DATA-BLOCK INDEX
C
C           (C*10) CWAVEL() = READ - WAVELENGTH (ANGSTROMS)
C           DIMENSION: DATA-BLOCK INDEX
C           (C*8)  CFILE()  = READ - SPECIFIC ION FILE SOURCE
C           DIMENSION: DATA-BLOCK INDEX
C           (C*8)  CTYPE()  = READ - DATA TYPE
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C          DIMENSION: DATA-BLOCK INDEX
C      (C*2)  CINDM( ) = READ - METASTABLE INDEX
C          DIMENSION: DATA-BLOCK INDEX
C
C      (I*4)  ITA( )   = READ - NUMBER OF ELECTRON TEMPERATURES
C          DIMENSION: DATA-BLOCK INDEX
C      (I*4)  IDA( )   = READ - NUMBER OF ELECTRON DENSITIES
C          DIMENSION: DATA-BLOCK INDEX
C
C      (R*8)  TETA( , ) = READ - ELECTRON TEMPERATURES (UNITS: eV)
C          1st DIMENSION: ELECTRON TEMPERATURE INDEX
C          2nd DIMENSION: DATA-BLOCK INDEX
C      (R*8)  TEDA( , ) = READ - ELECTRON DENSITIES (UNITS: CM-3)
C          1st DIMENSION: ELECTRON DENSITY INDEX
C          2nd DIMENSION: DATA-BLOCK INDEX
C
C      (R*8)  sxb( , , ) =READ - PHOTON EMISSIVITY VALUES
C          1st DIMENSION: ELECTRON TEMPERATURE INDEX
C          2nd DIMENSION: ELECTRON DENSITY INDEX
C          3rd DIMENSION: DATA-BLOCK INDEX
C
C ROUTINE: (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)  ITD    = ARRAY INDEX: ELECTRON DENSITY INDEX
C          (I*4)  NTNUM  = NUMBER OF ELECTRON TEMPERATURES FOR CURRENT
C          DATA-BLOCK
C          (I*4)  NDNUM  = NUMBER OF ELECTRON DENSITIES 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          (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
C          (C*1)  CSLASH = '/' - DELIMITER FOR 'XXHKEY'
C          (C*2)  C2     = GENERAL USE TWO BYTE CHARACTER STRING
C          (C*5)  IONNAM  = EMITTING ION READ FROM DATASET
C          (C*6)  CKEY1   = 'FILMEM' - INPUT BLOCK HEADER KEY
C          (C*4)  CKEY2   = 'TYPE ' - INPUT BLOCK HEADER KEY
C          (C*4)  CKEY3   = 'INDM ' - INPUT BLOCK HEADER KEY
C          (C*4)  CKEY4   = 'ISEL ' - INPUT BLOCK HEADER KEY
C          (C*80) C80    = GENERAL USE 80 BYTE CHARACTER STRING FOR
C          THE INPUT OF DATA-SET RECORDS.

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C ROUTINES:

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C          ROUTINE      SOURCE      BRIEF DESCRIPTION
C          -----
C          XXHKEY       ADAS         OBTAIN KEY/RESPONSE STRINGS FROM TEXT

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C          I4EIZ0      ADAS      INTEGER*4 FUNCTION      -
C
C          I4FCTN      ADAS      INTEGER*4 FUNCTION      -
C
C          I4UNIT      ADAS      INTEGER*4 FUNCTION      -
C
C
C
C
C-----
C
C
C
C NOTES: Based on xxdata_15.for.
C
C
C VERSION   : 1.1
C DATE     : 17-02-2006
C MODIFIED : Martin O'Mullane
C           - First version
C
C VERSION   : 1.2
C DATE     : 21-01-2007
C MODIFIED : Allan Whiteford
C           - Changed error messages from xxdata_15 to xxdata_13.
C
C-----

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CHARACTER*8      CFILE (NSTORE)
CHARACTER*2      CINDM (NSTORE)
CHARACTER*8      CTYPE (NSTORE)
CHARACTER*10     CWAVEL (NSTORE)
CHARACTER*80     DSNAME
CHARACTER*2      ESYM
INTEGER          IDA (NSTORE) , ISELA (NSTORE)
INTEGER          ITA (NSTORE) , IUNIT,          IZ,          IZ0
INTEGER          IZ1,          NBSEL,          NDDIM,          NSTORE
INTEGER          NTDIM
REAL*8          SXB (NTDIM,NDDIM,NSTORE) , TEDA (NDDIM,NSTORE)
REAL*8          TETA (NTDIM,NSTORE)

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