ADAS Subroutine xxdata_15

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       subroutine xxdata_15( iunit  , dsname ,
     &                       nstore , ntdim  , nddim  ,
     &                       iz0    , iz     , iz1    , esym  ,
     &                       nbsel  , isela  ,
     &                       cwavel , cfile  , ctype  , cindm ,
     &                       ita    , ida    ,
     &                       teta   , teda   ,
     &                       pec
     &                     )
C-----------------------------------------------------------------------
C
C  ***************** FORTRAN77 SUBROUTINE: xxdata_15 ******************
C
C  PURPOSE:  To fetch  data  from  input photon emissivity file
C            for a given emitting ion (element and charge).
C
C  CALLING PROGRAM: ADAS503/spec
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)  PEC(,,)    =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.
C
C ROUTINES:
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                               RETURNS Z0 FOR GIVEN ELEMENT SYMBOL
C          I4FCTN     ADAS      INTEGER*4 FUNCTION    -
C                               CONVERT CHARACTER STRING TO INTEGER
C          I4UNIT     ADAS      INTEGER*4 FUNCTION    -
C                               FETCH UNIT NUMBER FOR OUTPUT OF MESSAGES
C
C AUTHOR:  H. P. SUMMERS
C          K1/1/57
C          JET EXT. 4941
C
C DATE:    11/10/91
C
C UPDATE:  05/12/91 - PE BRIDEN: IONNAM NOW ALLOWED TO OCCUPY EITHER
C                                4 OR 5 SPACES IN THE HEADER.
C
C UPDATE:  23/04/93 - PE BRIDEN - ADAS91: ADDED I4UNIT FUNCTION TO WRITE
C                                         STATEMENTS FOR SCREEN MESSAGES
C
C UPDATE:  24/05/93 - PE BRIDEN - ADAS91: CHANGED I4UNIT(0)-> I4UNIT(-1)
C
C UPDATE:  27/2/95  - L. JALOTA - IDL_ADAS : INCREASED SIZE DSNAME FOR
C                                            USE UNDER UNIX SYSTEMS
C
C UNIX-IDL PORT:
C
C VERSION: 1.2                          DATE: 23-1-96
C MODIFIED: TIM HAMMOND (TESSELLA SUPPORT SERVICES PLC)
C               - CORRECTED FORMAT STATEMENTS FOR DSNAME LENGTH
C
C-----------------------------------------------------------------------
C
C
C NOTES: Copied from e3data.for. This is v1.1 of xxdata_15.
C
C
C VERSION  : 1.1
C DATE     : 12-04-2005
C MODIFIED : Martin O'Mullane
C              - First version
C
C VERSION  : 1.2
C DATE     : 25-04-2005
C MODIFIED : Martin O'Mullane
C              - Increase c3 to character*3 to permit more than
C                100 entries in adf15 file.
C
C-----------------------------------------------------------------------
      CHARACTER*8         CFILE(NSTORE)
      CHARACTER*2         CINDM(NSTORE)
      CHARACTER*8         CTYPE(NSTORE)
      CHARACTER*10        CWAVEL(NSTORE)
      CHARACTER*80        DSNAME
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```
CHARACTER*2         ESYM
INTEGER             IDA(NSTORE), ISELA(NSTORE)
INTEGER             ITA(NSTORE), IUNIT,       IZ,          IZ0
INTEGER             IZ1,         NBSEL,       NDDIM,       NSTORE
INTEGER             NTDIM
REAL*8              PEC(NTDIM,NDDIM,NSTORE),  TEDA(NDDIM,NSTORE)
REAL*8              TETA(NTDIM,NSTORE)
```