ADAS Subroutine h9ispf

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      SUBROUTINE H9ISPF( LPEND    , NDTIN    ,
     &                   IL       , NDTEM    ,
     &                   NV       , TSCEF    , TSCEF2   ,
     &                   ITRAN    , I1A      , I2A      ,
     &                   FTYPE    , TITLE    ,
     &                   ISTRN    , IFOUT    ,
     &                   MAXT     , TINE     ,
     &                   LFSEL    , LOSEL    ,
     &                   TOLVAL   ,
     &                   DTYPE    , KAP_VAL  , DRU_VAL  ,
     &                   ADF37
     &                 )
C-----------------------------------------------------------------------
C
C  ****************** FORTRAN77 SUBROUTINE: H9ISPF *********************
C
C  PURPOSE: PIPE COMMUNICATIONS WITH IDL AND TO RETURN USER SELECTED
C           OPTIONS AND VALUES.
C
C  CALLING PROGRAM: ADAS809
C
C  SUBROUTINE:
C
C  I/O   : (L*4)   LPEND    = .TRUE.  => END ANALYSIS OF CURRENT DATA
C                                        SETS
C                            = .FALSE. => CONTINUE PANALYSIS WITH CURRENT
C                                        DATA SETS
C
C  INPUT : (I*4)   NDTIN    = MAX. NUMBER OF TEMPERATURES ALLOWED
C
C  INPUT : (I*4)   IL       = NUMBER OF ENERGY LEVELS
C
C  INPUT : (I*4)   NDTEM    = INPUT DATA FILE: MAX. NO. OF TEMPERATURES
C
C  INPUT : (I*4)   NV       = INPUT DATA FILE: NUMBER   OF TEMPERATURES
C
C  INPUT : (R*8)   TSCEF(,) = INPUT DATA FILE: ELECTRON TEMPERATURES, OR
C                             2/3 AVERAGE ENERGY OF A NUMERICAL
C                             DISTRIBUTION
C                             2ND DIMENSION: 1 => KELVIN  (IFOUT=1)
C                                            2 => EV      (IFOUT=2)
C                                            3 => REDUCED (IFOUT=3)
C
C  INPUT : (R*8)   TSCEF2(,)= INPUT DATA FILE: MOST COMMON ELECTRON
C                            'TEMPERATURE' FOR A NUMERICAL DISTRIBUTION,
C                             OR A ZERO ARRAY IN ANALYTIC CASE
C                             2ND DIMENSION: 1 => KELVIN  (IFOUT=1)
C                                            2 => EV      (IFOUT=2)
C                                            3 => REDUCED (IFOUT=3)
C
C  INPUT : (I*4)   ITRAN    = NUMBER OF ELECTRON IMPACT TRANSITIONS
C
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C  INPUT : (I*4)   I1A()    = ELECTRON IMPACT TRANSITION:
C                              LOWER ENERGY LEVEL INDEX
C
C  INPUT : (I*4)   I2A()    = ELECTRON IMPACT TRANSITION:
C                              UPPER ENERGY LEVEL INDEX
C
C  INPUT : (C*6)   FTYPE    = TYPE OF FILE SELECTED AS COMPARISON
C
C  OUTPUT: (C*40)  TITLE    = USER ENTERED GENERAL TITLE FOR PROGRAM RUN
C
C  OUTPUT: (I*4)   ISTRN    = SELECTED ELECTRON IMPACT TRANSITION INDEX
C
C  OUTPUT: (I*4)   IFOUT    = 1 => INPUT TEMPERATURES IN KELVIN
C                           = 2 => INPUT TEMPERATURES IN EV
C                           = 3 => INPUT TEMPERATURES IN REDUCED FORM
C
C  OUTPUT: (I*4)   MAXT     = NUMBER OF INPUT TEMPERATURES ( 1 -> 20)
C
C  OUTPUT: (R*8)   TINE()   = ELECTRON TEMPERATURES (UNITS: SEE 'IFOUT')
C
C  OUTPUT: (L*4)   LFSEL    = .TRUE.  => CARRY OUT MINIMAX POLYNOMIAL
C                                        FITTING
C                           = .FALSE. => - DO NOT DO THE ABOVE -
C
C  OUTPUT: (R*8)   TOLVAL   = FRACTIONAL TOLERANCE FOR MINIMAX FIT
C                             (=0 IF MINIMAX FIT NOT SELECTED)
C
C  OUTPUT: (L*4)   LOSEL    = .TRUE.  => CALCULATE INTERPOLATED VALUES
C                                        FOR OUTPUT.
C                           = .FALSE. => - DO NOT DO THE ABOVE -
C
C  OUTPUT: (I*8)   DTYPE    = DISTRIBUTION TYPE SUCH THAT:
C                             0 => MAXWELLIAN
C                             1 => KAPPA
C                             2 => NUMERICAL
C  OUTPUT: (R*8)   KAP_VAL  = VALUE OF KAPPA
C
C
C
C     (I*4)   ILOGIC   = RETURN VALUE FROM IDL WHICH IS USED TO
C       REPRESENT A LOGICAL VARIABLE SINCE IDL
C                          DOES HAVE SUCH DATA TYPES.
C
C    (I*4)   I     = GENERAL PURPOSE COUNTER
C
C    (I*4)   J     = GENERAL PURPOSE COUNTER
C ROUTINES:
C          ROUTINE    SOURCE    BRIEF DESCRIPTION
C          ------------------------------------------------------------
C    XXFLSH     IDL-ADAS  CALLS 'FLUSH' TO CLEAR PIPE
C
C AUTHOR:  HUGH SUMMERS (UNIV. OF STRATHCLYDE)
C
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C DATE:    30/11/01
C
C DATE:   07/04/05
C MODIFIED: ALLAN WHITEFORD
C - ADDED FORMAT STATEMENT TO READING FROM PIPE
C-----------------------------------------------------------------------
      CHARACTER*80        ADF37
      CHARACTER*6         FTYPE
      CHARACTER*40        TITLE
      INTEGER             DTYPE,       I1A(ITRAN),  I2A(ITRAN),  IFOUT
      INTEGER             IL,          ISTRN,       ITRAN,       MAXT
      INTEGER             NDTEM,       NDTIN,       NV
      LOGICAL             LFSEL,       LOSEL,       LPEND
      REAL*8              DRU_VAL,     KAP_VAL,     TINE(NDTIN), TOLVAL
      REAL*8              TSCEF(NDTEM,3),           TSCEF2(NDTEM,3)
```