```
  1   000000I        SUBROUTINE TRANF                                                    540
  2   000004I        COMMON                                                              541
  3              1/VAR/U(21,18,10),V(21,18,10),P(21,18,10),DK(21,18,10),                 542
  4              2  DE(21,18,10),ERRU,ERRV,ERRM,ERRK,ERRE,ERRW,                          543
  5              3  PP(21,18,10),W(21,18,10),TM(21,18,10)                                544
  6              1/PRCP/ VISE(21,18,10),DEN(21,18,10),VISC,DENIN,FLOWIN                  545
  7              1/PCCR/ DU(21,18,10),DV(21,18,10),DW(21,18,10)                          546
  8              1/TUR/ SIGK,SIGE,CMU,C1,C2,CMU1,CMU2,E,CK,HINUM,SMNUM,ANV1(800),        547
  9              2  YN(800),YN1(800),SINX(800),SINY(800),SINZ(800),ANW1(800),           548
 10              3  YPLN(800),TAUN(800),ISC(800),JBC(800),KBC(800),IITY(800),           549
 11              4  TAUW(800),GEN(21,18,10),MC(21,18,10),IJLO(21,18,10),IITO            550
 12              1/CCEF/ AP(21,18,10),SU(21,18,10),SP(21,18,10),SUK(21,18,10),          551
 13              2   SPK(21,18,10),AE(21,18,10),AW(21,18,10),AN(21,18,10),              552
 14              3   AS(21,18,10),AT(21,18,10),AB(21,18,10),APO(21,18,10)               553
 15   000004I        COMMON                                                              554
 16              1/TRAN/ X(21,18,10),Y(21,18,10),Z(21,18,10),TJO(21,18,10),             555
 17              2   CX(21,18,10),CY(21,18,10),CZ(21,18,10),                            556
 18              3   EX(21,18,10),EY(21,18,10),EZ(21,18,10),                            557
 19              3   SX(21,18,10),SY(21,18,10),SZ(21,18,10)                             558
 20              1/LIMT/ L,M,LT,MT,L1,L2,M1,M2,LO,MO,ISWU,ISWV,ISWP,ISWK,ISWE,          559
 21              2   ALU,ALV,ALP,ALK,ALE,ALVIS,ALW,N,N1,N2,NO,ISWW,IG,NT,ALC,DTT        560
 22   000004I        COMMON                                                              561
 23              1/TTRAN/TXXE(21,18,10),TXXW(21,18,10),TYYN(21,18,10),                  562
 24              2   TYYS(21,18,10),TZZT(21,18,10),TZZB(21,18,10),                      563
 25              3   TYXE(21,18,10),TYXW(21,18,10),TYZT(21,18,10),                      564
 26              4   TYZB(21,18,10),TXYN(21,18,10),TXYS(21,18,10),                      565
 27              5   TXZT(21,18,10),TXZB(21,18,10),TZXE(21,18,10),                      566
 28              6   TZXW(21,18,10),TZYN(21,18,10),TZYS(21,18,10)                       567
 29           C-----CALCULATE GRID TRANSFORMATION COEFFICIENTS                           568
 30   000004I        DO 40 I=2,L                                                         569    1
 31   000018I        DO 40 J=2,M                                                         570    2
 32   00002CI        DO 40 K=2,N                                                         571    3
 33   000040I        P1=(X(I,J,K)+X(I,J-1,K)+X(I,J,K-1)+X(I,J-1,K-1)-X(I-1,J,K)-         572    4
 34              1   X(I-1,J-1,K)-X(I-1,J,K-1)-X(I-1,J-1,K-1))*0.25                      573
 35   0001A4I        P2=(X(I,J,K)+X(I-1,J,K)+X(I,J,K-1)+X(I-1,J,K-1)-X(I,J-1,K)-         574    5
 36              1   X(I-1,J-1,K)-X(I,J-1,K-1)-X(I-1,J-1,K-1))*0.25                      575
 37   000308I        P3=(X(I,J,K)+X(I-1,J,K)+X(I,J-1,K)+X(I-1,J-1,K)-X(I,J,K-1)-         576    6
 38              1   X(I-1,J,K-1)-X(I,J-1,K-1)-X(I-1,J-1,K-1))*0.25                      577
 39   00046CI        Q1=(Y(I,J,K)+Y(I,J-1,K)+Y(I,J,K-1)+Y(I,J-1,K-1)-Y(I-1,J,K)-        578    7
 40              1   Y(I-1,J-1,K)-Y(I-1,J,K-1)-Y(I-1,J-1,K-1))*0.25                      579
 41   0005D0I        Q2=(Y(I,J,K)+Y(I-1,J,K)+Y(I,J,K-1)+Y(I-1,J,K-1)-Y(I,J-1,K)-        580    8
 42              1   Y(I-1,J-1,K)-Y(I,J-1,K-1)-Y(I-1,J-1,K-1))*0.25                      581
 43   000734I        Q3=(Y(I,J,K)+Y(I-1,J,K)+Y(I,J-1,K)+Y(I-1,J-1,K)-Y(I,J,K-1)-        582    9
 44              1   Y(I-1,J,K-1)-Y(I,J-1,K-1)-Y(I-1,J-1,K-1))*0.25                      583
 45   000898I        R1=(Z(I,J,K)+Z(I,J-1,K)+Z(I,J,K-1)+Z(I,J-1,K-1)-Z(I-1,J,K)-        584   10
 46              1   Z(I-1,J-1,K)-Z(I-1,J,K-1)-Z(I-1,J-1,K-1))*0.25                      585
 47   0009FCI        R2=(Z(I,J,K)+Z(I-1,J,K)+Z(I,J,K-1)+Z(I-1,J,K-1)-Z(I,J-1,K)-        586   11
 48              1   Z(I-1,J-1,K)-Z(I,J-1,K-1)-Z(I-1,J-1,K-1))*0.25                      587
 49   000B60I        R3=(Z(I,J,K)+Z(I-1,J,K)+Z(I,J-1,K)+Z(I-1,J-1,K)-Z(I,J,K-1)-        588   12
 50              1   Z(I-1,J,K-1)-Z(I,J-1,K-1)-Z(I-1,J-1,K-1))*0.25                      589
 51   000CC4I        PTR=1.0/(P1*(Q2*R3-Q3*R2)-P2*(Q1*R3-Q3*R1)+P3*(Q1*R2-Q2*R1))       590   13
 52   000D36I        SU(I,J,K)=ABS(1.0/PTR)                                              591   14
 53   000D86I        AE(I,J,K)=PTR*(Q2*R3-Q3*R2)                                         592   15
 54   000DCCI        AW(I,J,K)=-PTR*(P2*R3-P3*R2)                                        593   16
 55   000E1AI        AN(I,J,K)=PTR*(P2*Q3-P3*Q2)                                         594   17
 56   000E60I        AS(I,J,K)=-PTR*(Q1*R3-Q3*R1)                                        595   18
 57   000EAEI        AT(I,J,K)=PTR*(P1*R3-P3*R1)                                         596   19
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