Anexo

Fichero de instrucciones 'q1'

A continuación se muestra un fichero de instrucciones 'q1' utilizado en este proyecto. Este tipo de ficheros son los utilizados por el código de propósito general PHOENICS para leer las instrucciones formuladas por el usuario a través del preprocesador SATTELITE que es el encargado de interpretarlas.

```
TALK=f;RUN( 1, 1);VDU=X11-TERM

    GROUP 1. Run title and other preliminaries

PARAB=F

REAL(BETA,AGRAV,TDELTA,TREF,TWALL,TPLA,BOXL,BOXB)
REAL(RA,RELA,PRA,VISCO,RHO,TADI,LPLA,TP1,TP2,TP21,CP,GAMMAG)
REAL(QFLU,CONDUC)
REAL(congas,preref,denref,tempref)
REAL(esquina,b1,b2,eta,fi,pi)
REAL(INTEN,KEIN,EPIN,VELINI,ENUTINI,OMEGIN)
PI=3.1416
RA=5.0E+10
FI=0.
ETA=90.-FI

mesg(eta :eta: fi :fi:

FI=FI*PI/180.
ETA=ETA*PI/180.

LPLA=3.6840
BOXL=LPLA*COS(FI)
RELA=0.1
   BOXB=RELA*BOXL
   ***Canal convergente
   @BOXB=(RELA*LPLA)+LPLA*SIN(FI)
   ***Trombe
BOXB=(RELA*LPLA)+0.5*LPLA*SIN(FI)

   ***Variables geometricas Trombe

REAL(HAB,ALT,ALT1,ALT2,ESP,RELH1,RELH2)
INTEGER(NX1,NX2,NX3,NY1,NY2,NY3)
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```
RELH1=0.1;RELH2=0.1;ALT=BOXL
ALT1=RELH1*BOXB;ALT2=RELH2*BOXB
ESP=1.0*BOXB;HAB=0.*BOXB

   ******************************

if (ETA.eq.PI*90./180.) then
ESQUINA=0.
else
   ***Canal convergente
   @ESQUINA=BOXL/TAN(ETA)
   ***Trombe
ESQUINA=(BOXL/2.)/TAN(ETA)
endif

B1=BOXB-ESQUINA
B2=BOXB+ESQUINA

   @@@@@@@@@@NUEVA DEFINICIÓN GEOMÉTRICA@@@@@@@@
REAL(LTOT);LTOT=3.6840
ALT1=RELH1*LTOT;ALT2=RELH2*LTOT
BOXL=LTOT-ALT1-ALT2
ALT=BOXL
ESP=0.1*LTOT;HAB=0.
LPLA=BOXL/COS(FI)
RELA=0.1
BOXB=RELA*LTOT
B1=BOXB
B2=B1+ESQUINA

AGRAV=9.81;TREF=0.
tempref=(273.+20.);BETA=1./tempref
congas=287.
preref=1.0E+05
denref=preref/(congas*tempref)

RHO=denref
VISCO=1.544E-05
PRA=0.71
CP=1004.5;GAMMAG=1.4
CONDUC=CP*RHO*VISCO/PRA

   ***PARA CANAL RECTO, BOXB=B1 Y LPLA=BOXL
   TDELTA=(RA*(VISCO**2.))/(AGRAV*BETA*RELA*(BOXB**3)*PRA)

   TDELTA=(RA*(VISCO**2.))/(AGRAV*BETA*COS(FI)*RELA*(B1**3)*PRA)
TDELTA=(RA*(VISCO**2.))/(AGRAV*BETA*(LTOT**3)*PRA)

   QFLU=(RA*RHO*VISCO**3.*CP)/(AGRAV*BOXB**4.*BETA*PRA**2.*RELA)
QFLU=(RA*RHO*VISCO**3.*CP)/(AGRAV*LTOT**4.*BETA*PRA**2.)

   ***SI SE IMPONE TDELTA, HACER LO SIGUIENTE
   TDELTA=35.1
   RA=AGRAV*BETA*COS(FI)*TDELTA*PRA*(B1**3.)*RELA/(VISCO**2.)

   ***SI SE IMPONE TADI, HACER LO SIGUIENTE
   TADI=0.1
   B1=((RA*(VISCO**2.))/(TADI*RELA*PRA*AGRAV*COS(FI)))**(1/3)
   LPLA=RELA*B1;BOXL=LPLA*COS(FI);BOXB=(RELA*LPLA)+LPLA*SIN(FI)
```

```
   TDELTA=TADI*tempref
   B2=BOXB+BOXL/TAN(ETA)

TWALL=TREF+TDELTA
TP1=TWALL
TP2=TWALL
TP21=0.5*TP2
REAL(QFLU1,QFLU2,QFLU21);QFLU1=QFLU;QFLU2=QFLU;QFLU21=0.5*QFLU2

mesg(b1 :b1: b2 :b2:
mesg(lpla :lpla: boxl :boxl: boxb :boxb: rela :rela:
mesg(ra :ra: tdelta :tdelta: pra :pra: rho :rho:
mesg(tp1 :tp1: tp2 :tp2: qflu :qflu: conduc :conduc:
mesg(esp :esp: hab :hab:
mesg(alt :alt: alt1 :alt1: alt2 :alt2:

   rg(1)=boxb;rg(2)=tref;rg(3)=lpla;rg(4)=tp1
   rg(5)=boxl;rg(6)=tp2;rg(7)=congas;rg(8)=preref
   rg(9)=denref;rg(10)=tempref

    GROUP 2. Transience; time-step specification

    GROUP 3. X-direction grid specification

    GROUP 4. Y-direction grid specification

    GROUP 5. Z-direction grid specification

    GROUP 6. Body-fitted coordinates or grid distortion

   @***Canal convergente

   NX=120
   NY=61

   ***Trombe

NX=150;NX1=24;NX2=24;NX3=NX-NX1-NX2
NY=86;NY3=60;NY2=26;NY1=0

BFC=T
   NONORT=T
   DIFCUT=0.5

   ***CONFIGURACION CANAL CONVERGENTE

   @GSET(D,NX,NY,NZ,BOXL,B1,1.0)

   Puntos

   ***CONFIGURACION DE PARED TROMBE, CHIMENEA SOLAR**********************

GSET(D,NX,NY,NZ,ALT1+ALT2+ALT,HAB+B2+ESP,1.0)

   GSET(P,P1,0.0,0.0,0.0)
   GSET(P,P2,ALT1,0.0,0.0)
   GSET(P,P3,ALT+ALT1,0.0,0.0)
   GSET(P,P4,ALT+ALT1+ALT2,0.0,0.0)

GSET(P,P15,ALT1,HAB,0.0)
```

```
GSET(P,P16,ALT+ALT1,HAB,0.0)

GSET(P,P5,ALT+ALT1+ALT2,HAB+ESP+B1,0.0)
GSET(P,P6,ALT+ALT1,HAB+ESP+B1,0.0)
GSET(P,P7,ALT1,HAB+ESP+B2,0.0)
GSET(P,P8,0.0,HAB+ESP+B2,0.0)

GSET(P,P9,0.0,HAB+ESP,0.0)
GSET(P,P13,ALT1,HAB+ESP,0.0)
GSET(P,P14,ALT+ALT1,HAB+ESP,0.0)
GSET(P,P10,ALT+ALT1+ALT2,HAB+ESP,0.0)

GSET(P,P11,0.0,HAB,0.0)
GSET(P,P12,ALT+ALT1+ALT2,HAB,0.0)

GSET(P,P16,ALT1+ALT,HAB,0.0)
GSET(P,P15,ALT1,HAB,0.0)
GSET(P,P14,ALT1+ALT,HAB+ESP,0.0)
GSET(P,P13,ALT1,HAB+ESP,0.0)

   Lineas

   GSET(L,L1,P1,P2,NX1,S1.6)
   GSET(L,L2,P2,P3,NX3,S1.5)
   GSET(L,L3,P3,P4,NX2,S1.6)

GSET(L,L5,P5,P6,NX2,S2.95)
GSET(L,L6,P6,P7,NX3,S1.95)
GSET(L,L7,P7,P8,NX1,S2.95)

GSET(L,L4,P10,P5,NY3,S1.95)
GSET(L,L8,P8,P9,NY3,S1.95)

GSET(L,L9,P9,P11,NY2,S2.45)
GSET(L,L10,P12,P10,NY2,S2.45)
   GSET(L,L12,P4,P12,NY1,S2.15)
   GSET(L,L11,P1,P11,NY1,S2.15)

GSET(L,L13,P9,P13,NX1,S2.95)
GSET(L,L14,P13,P14,NX3,S1.95)
GSET(L,L15,P14,P10,NX2,S2.95)

GSET(L,L16,P15,P16,NX3,S1.95)
GSET(L,L17,P14,P16,NY2,S2.45)
GSET(L,L18,P13,P15,NY2,S2.45)

   GSET(L,L19,P3,P16,NY1,S2.15)
   GSET(L,L20,P2,P15,NY1,S2.15)

GSET(L,L21,P14,P6,NY3,S1.95)
GSET(L,L22,P7,P13,NY3,S1.95)

GSET(L,L23,P11,P15,NX1,S2.95)
GSET(L,L24,P16,P12,NX2,S2.95)

   Contornos (Frames) y mallas

   GSET(F,F01,P11,P15.P16,P12,-,P10,P14.P13,P9,-)
   GSET(M,F01,+I+J,1,1,1,TRANS)
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```
   GSET(F,F02,P9,P13.P14,P10,-,P5,P6.P7,P8,-)
   GSET(M,F02,+I+J,1,NY1+NY2+1,1,TRANS)

   GSET(F,F03,P11,P15.P16,P12,P10,P5,P6.P7,P8,P9)
   GSET(M,F03,+I+J,1,1,1,TRANS)

GSET(F,F04,P11,-,P15,P13,P7,-,P8,P9)
GSET(M,F04,+I+J,1,NY1+1,1,TRANS)

GSET(F,F05,P16,-,P12,P10,P5,-,P6,P14)
GSET(M,F05,+I+J,NX1+NX3+1,1,1,TRANS)

   GSET(F,F06,P2,-,P3,-,P16,-,P15,-)
   GSET(M,F06,+I+J,NX1+1,1,1,TRANS)

GSET(F,F07,P15,-,P16,-,P14,-,P13,-)
GSET(M,F07,+I+J,NX1+1,NY1+1,1,TRANS)

GSET(F,F08,P13,-,P14,-,P6,-,P7,-)
GSET(M,F08,+I+J,NX1+1,NY1+NY2+1,1,TRANS)

GSET(C,K2,F,K1,1,NX,1,NY,+,0,0,1.0,INC,1.)

    GROUP 7. Variables stored, solved & named

SOLVE(P1,V1,u1,tem1)
SOLUTN(P1,Y,Y,Y,N,N,N)
SOLUTN(tem1,Y,Y,Y,N,N,N)
   NAME(H1)=temp
store(den1);store(visl)
   store(cp1)
YPLS=t;WALPRN=T
store(enut)

   ***COMPONENTES CARTESIANAS DE LA VELOCIDAD
   STORE(UCRT,VCRT)

   TURMOD(KEMODL)
   wallco=grnd2
   STORE(YPLS,STRS,SKIN,STAN)
   ***MODELO K-OMEGA
   TURMOD(KOMODL)
TURMOD(KOMODL-LOWRE)
GENK=T

   ***Esquemas numericos****

   DIFCUT=0.0
SCHEME(MUSCL,omeg,KE,U1,V1)

    GROUP 8. Terms (in differential equations) & devices

   TERMS(tem1,N,Y,Y,N,Y,N)

    GROUP 9. Properties of the medium (or media)

   ***PROPIEDADES CONSTANTES

   RHO1=RHO;ENUL=VISCO;PRNDTL(tem1)=PRA
```

```
   ***PROPIEDADES VARIABLES (OPCIONES)

   ***Sutherland
   ENUL=GRND6
   ENULA=1.46E-06;ENULB=110.
   ***Prandtl-Kolmogorov o Harlow-Nakayama
   ENUT=GRND3
   ENUT=GRND5

   ***Cuadratico
ENUL=GRND2
ENULA=-4.94679E-06;ENULB=4.58394E-08;ENULC=8.0974E-11

   ***Densidad, gases ideales
RHO1=GRND5
RHO1A=0.0;RHO1B=1./CONGAS;RHO1C=1./GAMMAG
PRESS0  = PREREF
TEMP0   = 273.+20.
   DVO1DT=RHO
DRH1DP  = GRND5
   ***Prandtl y cp constantes
CP1=CP;PRNDTL(TEM1)=PRA
PRT(TEM1)=0.86
   CP1     = GRND10;PRNDTL(TEM1) = -GRND10 (si se carga PROPS)

   ***PROPIEDADES VARIABLES EN GROUND

   enul=grnd
   rho1=grnd
    drh1dp=grnd
   ***Signo negativo para la difusividad térmica
   prndtl(tem1)=-grnd

    GROUP 10. Inter-phase-transfer processes and properties

    GROUP 11. Initialization of variable or porosity fields

FIINIT(P1)=1.0E-03
   ***Si se impone qflu:
   TDELTA=(QFLU*BOXB/CONDUC)*RELA
   VELINI=(agrav*beta*tdelta*boxl)**0.5
VELINI=visco*(ra**0.44)*(rela**(-0.47))/(3.*pra*boxl)
VELINI=0.349
FIINIT(U1)=VELINI
FIINIT(V1)=0.0001*VELINI
fiinit(tem1)=tref
fiinit(visl)=VISCO
fiinit(den1)=RHO
INTEN=0.02
ENUTINI=40.*VISCO;FIINIT(ENUT)=ENUTINI
KEIN=(3/2)*(INTEN**2.)*(VELINI**2.)
EPIN=0.09*(KEIN**2.)/ENUTINI
   ***Modelo k-omega
   KEIN=(INTEN**2.)*(VELINI**2.)
   OMEGIN=0.1643*(KEIN**1.5)/(0.09*BOXB*0.1*KEIN)
OMEGIN=EPIN/(0.09*KEIN)
   FIINIT(EP)=EPIN
FIINIT(KE)=KEIN
FIINIT(OMEG)=OMEGIN
```

```
mesg(epin :epin: kein :kein: velini :velini: tdelta :tdelta:
mesg(omegin :omegin:

   CONPOR(sur,0.0,south,1,nx,1,1,1,1)
   CONPOR(nor,0.0,north,1,nx,ny,ny,1,1)

RESTRT(P1,U1,V1,TEM1,KE,OMEG,ENUT,VISL,DEN1)

   ***Trombe
CONPOR(MURO1,0.0,south,NX1+1,NX,NY1+1,NY1+1,1,1)
CONPOR(MURO2,0.0,north,NX1+1,NX,NY1+NY2,NY1+NY2,1,1)
CONPOR(MURO3,0.0,west,NX1+1,NX1+1,NY1+1,NY1+NY2,1,1)
CONPOR(MURO4,0.0,east,NX,NX,NY1+1,NY1+NY2,1,1)
   CONPOR(MURO,0.0,CELL,NX1+1,NX,NY1+1,NY1+NY2,1,1)

STORE(PRPS)
FIINIT(PRPS)=-1
PATCH(MURO,INIVAL,NX1+1,NX,NY1+1,NY1+NY2,1,1,1,1)
INIT(MURO,PRPS,0.0,199.0)

    GROUP 12. Unused

    GROUP 13. Boundary conditions and special sources

   ***Trombe, chimenea solar

   PATCH(FLUIDO,CELL,NX/2,NX/2,NY1/2,NY1/2,1,1,1,1)
   COVAL(FLUIDO,P1,FIXP,0.0)
   COVAL(FLUIDO,U1,ONLYMS,0.0)
   COVAL(FLUIDO,V1,ONLYMS,0.0)
   COVAL(FLUIDO,TEM1,ONLYMS,0.0)
   COVAL(FLUIDO,KE,ONLYMS,0.0)
   COVAL(FLUIDO,OMEG,ONLYMS,0.0)

PATCH(SUELO,WWALL,1,1,1,NY,1,1,1,1)
COVAL(SUELO,U1,GRND2,0.0)
COVAL(SUELO,V1,GRND2,0.0)
   COVAL(SUELO,TEM1,GRND2,TREF)
COVAL(SUELO,OMEG,GRND2,GRND2)
COVAL(SUELO,KE,1.0,0.0)

   PATCH(TECHO,EWALL,NX,NX,NY1+1,NY1+NY2,1,1,1,1)
   COVAL(TECHO,U1,GRND2,0.0)
   COVAL(TECHO,V1,GRND2,0.0)
      COVAL(TECHO,TEM1,GRND2,TREF)
   COVAL(TECHO,OMEG,GRND2,GRND2)
   COVAL(TECHO,KE,1.0,0.0)

   PATCH(PAREDHAB,SWALL,1,NX,1,1,1,1,1,1)
   COVAL(PAREDHAB,U1,GRND2,0.0)
   COVAL(PAREDHAB,V1,GRND2,0.0)
   COVAL(PAREDHAB,TEM1,GRND2,TREF)
   COVAL(PAREDHAB,OMEG,GRND2,GRND2)
   COVAL(PAREDHAB,KE,1.0,0.0)

   PATCH(PAREDTR1,SWALL,NX1+1,NX,NY1+1,NY1+1,1,1,1,1)
   COVAL(PAREDTR1,U1,GRND2,0.0)
   COVAL(PAREDTR1,V1,GRND2,0.0)
   COVAL(PAREDTR1,TEM1,GRND2,TP2)
      COVAL(PAREDTR1,tem1,fixflu,qflu)
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   COVAL(PAREDTR1,OMEG,GRND2,GRND2)
   COVAL(PAREDTR1,KE,1.0,0.0)

PATCH(PAREDTR2,SWALL,NX1+1,NX,NY1+NY2+1,NY1+NY2+1,1,1,1,1)
COVAL(PAREDTR2,U1,GRND2,0.0)
COVAL(PAREDTR2,V1,GRND2,0.0)
COVAL(PAREDTR2,TEM1,GRND2,TP2)
   COVAL(PAREDTR2,tem1,fixflu,qflu2)
COVAL(PAREDTR2,OMEG,GRND2,GRND2)
COVAL(PAREDTR2,KE,1.0,0.0)

PATCH(SUEPATR,EWALL,NX1,NX1,NY1+1,NY1+NY2,1,1,1,1)
COVAL(SUEPATR,U1,GRND2,0.0)
COVAL(SUEPATR,V1,GRND2,0.0)
   COVAL(SUEPATR,TEM1,GRND2,0.5*(TP2+TP21))
   COVAL(SUEPATR,tem1,fixflu,0.5*(qflu2+qflu21))
COVAL(SUEPATR,OMEG,GRND2,GRND2)
COVAL(SUEPATR,KE,1.0,0.0)

PATCH(TECHPATR,EWALL,NX,NX,NY1+1,NY1+NY2,1,1,1,1)
COVAL(TECHPATR,U1,GRND2,0.0)
COVAL(TECHPATR,V1,GRND2,0.0)
   COVAL(TECHPATR,TEM1,GRND2,TP2)
   COVAL(TECHPATR,tem1,fixflu,qflu)
COVAL(TECHPATR,OMEG,GRND2,GRND2)
COVAL(TECHPATR,KE,1.0,0.0)

   PATCH(CRISPA1,NWALL,1,NX1,NY,NY,1,1,1,1)
   COVAL(CRISPA1,U1,GRND2,0.0)
   COVAL(CRISPA1,V1,GRND2,0.0)
   COVAL(CRISPA1,TEM1,GRND2,TP1)
   COVAL(CRISPA1,tem1,fixflu,qflu)
   COVAL(CRISPA1,OMEG,GRND2,GRND2)
   COVAL(CRISPA1,KE,1.0,0.0)

PATCH(CRISCAN,NWALL,1,NX,NY,NY,1,1,1,1)
COVAL(CRISCAN,U1,GRND2,0.0)
COVAL(CRISCAN,V1,GRND2,0.0)
COVAL(CRISCAN,TEM1,GRND2,TP1)
   COVAL(CRISCAN,tem1,fixflu,qflu1)
COVAL(CRISCAN,OMEG,GRND2,GRND2)
COVAL(CRISCAN,KE,1.0,0.0)

   PATCH(CRISPA2,NWALL,NX1+NX3+1,NX,NY,NY,1,1,1,1)
   COVAL(CRISPA2,U1,GRND2,0.0)
   COVAL(CRISPA2,V1,GRND2,0.0)
   COVAL(CRISPA2,TEM1,GRND2,TP1)
   COVAL(CRISPA2,tem1,fixflu,qflu)
   COVAL(CRISPA2,OMEG,GRND2,GRND2)
   COVAL(CRISPA2,KE,1.0,0.0)

PATCH(ENTRADA,SOUTH,1,NX1,NY1+1,NY1+1,1,1,1,1)
COVAL(ENTRADA,P1,-2.*RHO,0.0)
COVAL(ENTRADA,U1,ONLYMS,0.0)
COVAL(ENTRADA,V1,ONLYMS,SAME)
COVAL(ENTRADA,TEM1,ONLYMS,TREF)
COVAL(ENTRADA,KE,ONLYMS,KEIN)
COVAL(ENTRADA,OMEG,ONLYMS,OMEGIN)

   PATCH(SALIDA,SOUTH,NX1+NX3+1,NX,NY1+1,NY1+1,1,1,1,1)
```

```
   COVAL(SALIDA,P1,FIXVAL,0.0)
   COVAL(SALIDA,U1,ONLYMS,0.0)
   COVAL(SALIDA,V1,ONLYMS,0.0)
   COVAL(SALIDA,TEM1,ONLYMS,TREF)
   COVAL(SALIDA,KE,ONLYMS,0.0)
   COVAL(SALIDA,OMEG,ONLYMS,0.0)

PATCH(SALIDA,EAST,NX,NX,NY1+NY2+1,NY,1,1,1,1)
COVAL(SALIDA,P1,FIXVAL,0.0)
COVAL(SALIDA,U1,ONLYMS,0.0)
COVAL(SALIDA,V1,ONLYMS,0.0)
COVAL(SALIDA,TEM1,ONLYMS,TREF)
COVAL(SALIDA,KE,ONLYMS,0.0)
COVAL(SALIDA,OMEG,ONLYMS,0.0)

    BUOYANCY FORCE

    ***FLOTACION BOUSSINESQ

   BUOYA=AGRAV
   BUOYB=0.
   BUOYC=0.
   BUOYD=-BETA*CP
   BUOYE=-BUOYD*TREF
   PATCH(BUOY,PHASEM,1,NX,1,NY,1,NZ,1,1)
   COVAL(BUOY,U1,FIXFLU,GRND3)
   COVAL(BUOY,V1,FIXFLU,GRND3)
   COVAL(BUOY,W1,FIXFLU,GRND3)

   ***FLOTACION DIF. DENSIDAD

BUOYA=-AGRAV;BUOYD=RHO
PATCH(BUOY,PHASEM,1,NX,1,NY,1,NZ,1,1)
COVAL(BUOY,U1,FIXFLU,GRND2)
COVAL(BUOY,V1,FIXFLU,GRND2)
   COVAL(BUOY,W1,FIXFLU,GRND2)

PATCH(KESOURCE,PHASEM,1,NX,1,NY,1,NZ,1,1)
COVAL(KESOURCE,KE,GRND4,GRND4)
   COVAL(KESOURCE,EP,GRND4,GRND4)
COVAL(KESOURCE,OMEG,GRND4,GRND4)

   ***Términos adicionales de flotación turbulentos***

   PATCH(KEBUOY,PHASEM,1,NX,1,NY,1,NZ,1,1)
   COVAL(KEBUOY,KE,GRND4,GRND4)
   COVAL(KEBUOY,EP,GRND4,GRND4)

   ***FLOTACION EN GROUND

   RSG1=1.0; RSG2=BETA ; RSG8=AGRAV ; RSG3=TREF

   PATCH(flot,PHASEM,1,nx,1,NY,1,1,1,1)
   COVAL(flot,u1,FIXFLU,GRND)

    GROUP 14. Downstream pressure for PARAB=.TRUE.

    GROUP 15. Termination of sweeps

LSWEEP=1000
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    GROUP 16. Termination of iterations

SELREF  =    T;RESFAC  = 1.000E-16
   SELREF=F
   RESREF(P1)=1.E-24;RESREF(TEM1)=1.E-24
   RESREF(U1)=1.E-24;RESREF(V1)=1.E-24
   RESREF(KE)=1.E-24
   RESREF(EP)=1.E-24
   RESREF(OMEG)=1.E-24

    GROUP 17. Under-relaxation devices

TINY=1.E-10;VARMIN(KE)=1.E-10;VARMAX(OMEG)=20000.
CONWIZ=T;KELIN=2
LITER(P1)=10;LITER(TEM1)=10
LITER(KE)=10;LITER(OMEG)=10
LITER(U1)=10;LITER(V1)=10
RELAX(P1,LINRLX,0.1)
RELAX(V1,FALSDT,0.0005)
RELAX(u1,FALSDT,0.0005)
RELAX(tem1,LINRLX,0.1)
RELAX(KE,LINRLX,0.0001)
RELAX(OMEG,LINRLX,0.00001)
RELAX(ENUT,LINRLX,0.1)
RELAX(VISL,LINRLX,0.1)
RELAX(DEN1,LINRLX,0.1)
RELAX(PRPS,LINRLX,0.1)
RELAX(VCMP,LINRLX,0.1)
RELAX(UCMP,LINRLX,0.1)
RELAX(WCRT,LINRLX,0.1)
RELAX(VCRT,LINRLX,0.1)
RELAX(UCRT,LINRLX,0.1)

    GROUP 18. Limits on variables or increments to them

    GROUP 19. Data communicated by satellite to GROUND

USEGRD=T

    GROUP 20. Preliminary print-out

ECHO=T

    GROUP 21. Print-out of variables

   INIFLD=T
ITABL=2
nyprin=6
nxprin=nx/120

OUTPUT(P1,y,y,y,Y,Y,Y)
OUTPUT(U1,y,y,y,Y,Y,Y)
OUTPUT(V1,y,y,y,Y,Y,Y)
OUTPUT(tem1,y,y,y,Y,Y,Y)
output(visl,y,y,y,y,y,y)
output(den1,y,y,y,y,y,y)
OUTPUT(EP,Y,Y,Y,Y,Y,Y)
   OUTPUT(KE,Y,Y,Y,Y,Y,Y)
OUTPUT(OMEG,Y,Y,Y,Y,Y,Y)
```

```
   OUTPUT(YPLS,Y,Y,Y,Y,Y,Y);OUTPUT(STAN,Y,Y,Y,Y,Y,Y)

    GROUP 22. Spot-value print-out

IYMON=NY1+NY2+1; IxMON=NX1+90

    GROUP 23. Field print-out and plot controli

ISOLX   =      -1 ;ISOLY  =      -1 ;ISOLZ  =       0

   tstswp=-1

STOP
```