

**ПРОГРАММА ДЛЯ ЭВМ  
«АРМ-АГРОМЕТПРОГНОЗ – ДИНАМИКО-СТАТИСТИЧЕСКИЕ  
ПРОГНОЗЫ» В СОСТАВЕ «РЕГИОНАЛЬНОЙ  
АВТОМАТИЗИРОВАННОЙ СИСТЕМЫ «АРМ-АГРОМЕТПРОГНОЗ»  
ДЛЯ УРАЛЬСКОГО УГМС»**

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Фрагменты исходного текста программы

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**Расчет урожайности ярового ячменя в Уральском регионе**

С РАСЧЕТ УРОЖАЙНОСТИ ЯЧМЕНЯ ДЛЯ УРАЛЬСКОГО УГМС

С Нумерация областей: 1-Свердловская, 2-Пермская, 3-Челябинская,

с 4-Курганская

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DIMENSION N11(4),N22(4),N11V(4),N22V(4),
*SBM(4),TSS(4,18),Y1(4,50),YR(50),STR(39),
*W0C(15),TSC(15),W0(15),TS(15),DV(15),Y(50),t(15), IG1(70)
*,IG2(20), S5(7,20), BCC(50),
*W0Y(4,18),K5(4)
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CHARACTER*20 OBL
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CHARACTER*57 ZAG
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COMMON /BL1/T0/BL2/DV,JC,N
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COMMON /BL3/MP/BL4/TEN/BL5/KH
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```
REAL MP,mp_june,mp_jule
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integer nobl,kkk
character datepr*10, method*10
real prognos
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```
INTEGER T0,DV
DATA N11/21,21,2*1/
DATA N22/2*5,2*6/
DATA N11V/4*20/
DATA N22V/4*8/
DATA SBM/185.00,160.00,114.00,152.00/
DATA K5/4*16/
DATA (W0Y(1,K),K=1,18)/111.,111.,111.,111.,111.,17.,21.,20.,24.,
*28.,25.,28.,22.,22.,111.,111.,111.,111./
DATA (W0Y(2,K),K=1,18)/111.,111.,111.,111.,111.,20.,20.,22.,24.,
*26.,23.,27.,20.,23.,111.,111.,111.,111./
DATA (W0Y(3,K),K=1,18)/111.,111.,111.,111.,111.,111.,19.,18.,20.,
*27.,24.,25.,18.,17.,111.,111.,111.,111./
DATA (W0Y(4,K),K=1,18)/111.,111.,111.,111.,111.,111.,18.,16.,20.,
*23.,20.,22.,19.,16.,111.,111.,111.,111./
DATA (TSS(1,K),K=1,18)/111.,111.,111.,111.,111.,11.9,12.9,16.2,
*17.0,18.3,17.8,17.5,16.4,14.9,111.,111.,111.,111./
DATA (TSS(2,K),K=1,18)/111.,111.,111.,111.,111.,11.5,12.7,16.1,
*16.9,18.2,18.0,17.5,16.4,14.9,111.,111.,111.,111./
DATA (TSS(3,K),K=1,18)/111.,111.,111.,111.,111.,111.,14.5,15.6,
*18.0,19.0,18.6,17.7,17.3,16.2,111.,111.,111.,111./
DATA (TSS(4,K),K=1,18)/111.,111.,111.,111.,111.,111.,15.0,18.0,
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*18.6,19.7,19.2,18.6,17.4,16.5,111.,111.,111.,111./
open (5,file='jJDUR.dat')
open (6,file='jJDUR.res')
  READ(5,104)ZAG
READ(5,108)ND,MD,NG, NGf
  write(6,104)ZAG
write(6,108)ND,MD,NG
N=9          ! Кол-во декад с 2 дек АПРЕЛЯ по 2 дек августа
KO=4        ! Кол-во областей
k5=16
  nbeg=15
N5=32 !!!KC
METHOD="jJDUR "
WRITE(6,110)
WRITE(6,111)
WRITE(6,1111)
WRITE(6,112)
WRITE(6,1121)
KC=NMAX-NMIN+1
NMAX=NG-1
NMIN=1971
IGG1=NGf    ! НАЧАЛЬНЫЙ ГОД ПРОГНОЗА
if (NGf.eq.0) IGG1=NG
  KC=NMAX-NMIN+1
IGPROG=NMAX-IGG1+1 ! КОЛ-ВО ЛЕТ ПРОГНОЗА
DO 2 I=1,1
READ(5,103)OBL
IF (INDEX (OBL, 'Кур').GT.0) NOBL=141
  IF (INDEX (OBL, 'Пер').GT.0) NOBL=138
  IF (INDEX (OBL, 'Све').GT.0) NOBL=139
IF (INDEX (OBL, 'Чел').GT.0) NOBL=140
IF (NOBL.EQ.141) NO=4
  IF (NOBL.EQ.138) NO=2
  IF (NOBL.EQ.139) NO=1
  IF (NOBL.EQ.140) NO=3
  kkk=910
READ(5,106) (IG1(L),L=1,KC) ! ВВОД ЛЕТ
  READ(5,104)ZAG
READ(5,105)(YR(L),L=1,KC)
  READ(5,104)ZAG
READ(5,1181) (IG2(L),L=1,IGPROG+1) ! ВВОД ПЛОЩАДЕЙ
  READ(5,118) (S5(NO,L),L=1,IGPROG+1)
DO 1 J=1,KC

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Y1(no,J)=YR(J)
1 CONTINUE
!!!!-----
   KKK=015
   DO 30 I55=1,1 !IGPROG+1 ! KOJI-BO LIET PPOГHO3A
   READ(5,104) ZAG
   READ(5,104) ZAG
   READ (5,100) (TSC(L),L=1,10)
   READ(5,104) ZAG
     READ (5,100) (W0C(J),J=1,10)
   DO 9 J=1,4
   IF (TSC(J).eq.99.9 .or. W0C(J).eq.99.9) GOTO 30
9 CONTINUE
   DO 3 J=1,n5 !KC
   Y(J)=Y1(NO,J+(IGG1-32-1-1971+I55))
3 CONTINUE
!   N5=KC
   K=K5(NO)
   CALL GARM(N5,K,Y)
   N1C=N11(NO)
   N2C=N22(NO)
   CALL TNUL(N1C,N2C)
   N1V=N11V(NO)
   N2V=N22V(NO)
   CALL DVV(N1C,N2C,N1V,N2V)
c   IF(N2C.EQ.5.AND.(N1C.GT.10.AND.N1C.LE.20))NP=0
   IF(N2C.EQ.5.AND.N1C.GT.20)NP=0
   IF(N2C.EQ.6.AND.N1C.LE.10)NP=1
   IF(N2C.EQ.6.AND.(N1C.GT.10.AND.N1C.LE.20))NP=2
   IF(N2C.EQ.6.AND.N1C.GT.20)NP=3
   DO 7 J=1,N
   TS(J)=TSS(NO,JC-10+J)
   W0(J)=W0Y(NO,JC-10+J)
7 CONTINUE
   CALL KDEK(ND,MD,N1C,N2C)
   DO 8 J=1,KH
   TS(J)=TSC(J+NP)
   W0(J)=W0C(J+NP)
8 CONTINUE
   CALL DMPP(W0,TS,DV,T0,NO,N,RAST,W0Y,TSS)
   C1=MP/SBM(NO)
   IF(C1.GT.1.75)C1=1.75
   IF(C1.LE.0.25)C1=0.25

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IF(NO.EQ.1.AND.TEN.LT.17)TEN=17
  IF(NO.EQ.2.AND.TEN.LT.15)TEN=15
IF(NO.EQ.2.AND.NG.EQ.2016)TEN=16
IF(NO.EQ.3.AND.TEN.LE.10)TEN=10.
IF(NO.EQ.3.AND.NG.EQ.2016)TEN=12
IF(NO.EQ.4.AND.TEN.LT.14)TEN=14.
PR=C1*TEN
C1=C1*100.
VAL=PR*S5(NO,I55)*0.1
40 WRITE(6,113)OBL,TEN,C1,PR,S5(NO,I55),VAL
  write(datepr,9991) nd,md,IGG1+I55-1 !ng
9991 format(i2,'.0',i1,'.',i4)
  PROGNOZ=PR
  BCC(I55)=PR
  call opruro(NOBL,KKK,METHOD,DATEPR,PROGNOZ)
  call rustbl(obl,NOBL,KKK,DATEPR,TEN,C1,PR,S5(NO,I55),VAL)
!!!!-----
30 CONTINUE
2 CONTINUE
100 FORMAT (21F5.1)
101 FORMAT(12('-'),'Прогноз урожайности ярового ячменя на ',I3,I2,I5,
  *' г.',16('-'))
103 FORMAT (A20)
104 FORMAT(A57)
105 FORMAT(16F5.1)
106 FORMAT(16I5)
107 FORMAT(1X,5I3,4F5.1)
108 FORMAT(I3,I2,2I5)
110 FORMAT(2x,76('-'))
111 FORMAT('  Субъект   |Тенденция |Оценка условий| Прогноз  |
  * Площадь,| Валовой')
1111 format('  Российской |урожайности,| вегетации, |урожайности,|
  * тыс.га  | сбор,')
112 format('  Федерации   | ц/га   |   %    | ц/га   |
  *         | тыс.тонн')
1121 format('-----+-----+-----+-----+
  *-----+-----')
113 FORMAT(A16,"|",F8.1,4X,"|",F9.1,5X,"|",F8.1,4X,"|",F8.2,X,"|",F9.2
  *)
114 FORMAT(1X,I2,1X,A20,56('-'))
115 FORMAT(24I3)
116 FORMAT(14F5.2)
117 FORMAT(16X,5A4,2I5)

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118 FORMAT (8F10.1)

1181 FORMAT (8I10)

END

SUBROUTINE DMPP(W0,TS,DV,T0,NO,N,RAST,W0Y,TSS2)

DIMENSION W0(15),TS(15),DV(15),TSS(198),W0Y(4,18),TSS2(4,18),

\*TS11(15),BKK(4),AFOO(4),AFRO(4),FII(4),TKS(4),

\*TP11(9),TP22(9),TP33(8),TP44(8),NG(4)

COMMON /BL3/MP

COMMON /BL6/TSS,TS11

INTEGER T0,DV,GI

REAL DAX1(0:54),DAX2(0:54),DAX3(0:54),DAX4(0:54),

\* DAX6(0:78),DAX7(0:78),DAX8(0:78),DAX9(0:78)

REAL M,ML,MS,MR,MP,LL,KSIFL,J0,JJ

DATA TKS/998.4,991.0,981.7,1043.6/

DATA TP11/10,11,11,12,12,12,12,12,12/

DATA TP22/21,21,22,22,22,22,22,22,22/

DATA TP33/10,10,11,12,13,14,14,14/

DATA TP44/21,21,22,22,22,22,22,22,22/

DATA FII/56.7,57.0,55.2,55.4/

DATA NG/480.,482.,387.,350./

DATA VL/0.0025/

DATA VS/0.0009/

DATA VR/0.0026/

DATA SL/0.000066/

DATA AFOO/0.596,0.558,0.578,0.671/

DATA AFRO/4\*0.5/

DATA CL/0.25/

DATA CS/0.30/

DATA CR/0.25/

DATA CP/0.20/

DATA ZZL/40./

DATA DAX1/18.,!Свердловская

\* 0.,843.,923.,952.,979.,985.,987.,1005.,1028.,1033.,

\* 1040.,1060.,1090.,1100.,1140.,1170.,1200.,2000.,

\* 22.,22.,22.,22.,22.,22.,22.,22.,22.,22.,

\* 22.,22.,23.0,23.,23.,23.,24.,24.,

\* 18\*0/

DATA DAX2/18.,!Пермский

\* 0.,874.,947.,949.,952.,963.,993.,996.,997.,1002.,

\* 1020.,1040.,1080.,1140.,1160.,1180.,1200.,2000.,

\* 18.,22.,22.,22.,22.,22.,22.,22.,22.,22.,

\* 22.5, 23.5, 23.5, 24., 24., 24., 24., 25.,

\* 18\*0/

DATA DAX3/18.,!Челябинская

\* 0.,930.,952.,962.,968.,974.,1000.,1020.,1026.,1037.,

\* 1038.,1060.,1070.,1080.,1130.,1155.,1218.,2000.,

\* 26.,26.,26.,26.,26.,26.,26.,27.,27.,27.,

\* 27.,29.,29.,26.,26.,26.,26.,26.,

\* 18\*0/

DATA DAX4/18.,!Курганская

\* 0.,930.,954.,973.,988.,1000.,1020.,1040.,1060.,1100.,

\* 1120.,1140.,1160.,1180.,1200.,1220.,1240.,2000.,

\* 18.,25.,25.,25.,25.,26.,26.,26.,26.,27.,

\* 26.,27.,26.,26.,26.,26.,26.,30.,

\* 18\*0/

DATA DAX6/26.,!Свердловская

\* 0.,0.1,0.25,0.3,0.4,0.5,0.6,0.7,0.8,0.9,1.0,1.1,1.2,1.3,

\* 1.4,1.5,1.6,1.7,1.8,1.9,2.0,2.6,3.5,4.0,5.0,10.0,

\* 0.85,0.85,0.90,1.0,1.00,1.,1.,1.,1.,1.,1.,1.,1.,

\* 1.,1.,1.1,1.1,1.1,1.2,1.2,1.2,1.1,0.9,0.8,0.7,

\* 26\*0/

DATA DAX7/26.,!Пермский

\* 0.,0.1,0.25,0.3,0.4,0.5,0.6,0.7,0.8,0.9,1.0,1.1,1.2,1.3,

\* 1.4,1.5,1.6,1.7,1.8,1.9,2.0,2.6,3.5,4.0,5.0,10.0,

\* 0.85,0.85,0.90,1.0,1.00,1.,1.,1.,1.,1.,1.,1.,1.,

\* 1.,1.1,1.1,1.1,1.1,1.2,1.2,1.2,1.1,0.9,0.8,0.7,

\* 26\*0/

DATA DAX8/26.,!Челябинская

\* 0.,0.1,0.25,0.3,0.4,0.5,0.6,0.7,0.8,0.9,1.0,1.1,1.2,1.3,

\* 1.4,1.5,1.6,1.7,1.8,1.9,2.0,2.6,3.5,4.0,5.0,10.0,

\* 0.85,0.85,0.90,1.0,1.00,1.,1.,1.,1.,1.,1.,1.,1.,

\* 1.,1.1,1.2,1.2,1.2,1.2,1.2,1.2,1.2,0.9,0.8,0.7,

\* 26\*0/

DATA DAX9/26.,!Курганская

\* 0.,0.1,0.25,0.3,0.4,0.5,0.6,0.7,0.8,0.9,1.0,1.1,1.2,1.3,

\* 1.4,1.5,1.6,1.7,1.8,1.9,2.0,2.6,3.5,4.0,5.0,10.0,

\* 0.85,0.85,0.90,1.0,1.00,1.,1.,1.,1.,1.,1.,1.,1.,

\* 1.,1.1,1.2,1.2,1.2,1.2,1.1,1.0,1.0,0.9,0.8,0.7,

\* 26\*0/

$$\text{DROST}(\text{TS2}, \text{TOPT}, \text{CC}) = (2.3026 * (2./\text{TOPT}) * 10. ** (2. - (2./\text{TOPT}) * \text{TS2}) * \\ * 1000. * \text{CC}) / (1. + 10. ** (2. - (2./\text{TOPT}) * \text{TS2})) ** 2$$

GI=0

J1=1

ML=NG(NO)\*VL

MS=NG(NO)\*VS

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MR=NG(NO)*VR
MP=0
M=ML+MS+MR
LL=NG(NO)*SL
FI=FII(NO)
ZL=ZZL
AFO=AFOO(NO)
AFR=AFRO(NO)
  IF (NO.eq.1.or.NO.eq.2) then
    CALL SUMT (TS,DV,1,9,S3528)
    CALL SUMT (TS,DV,1,6,S3527)
    CALL SUMT (TS,DV,1,7,S3537)
    CALL SUMT (TS,DV,1,4,S3536)
    TF=S3528/4
    TOPL=S3527/2
    TOPS=S3537/2
    TPP=(S3536+S3527)/2
    TOPP=(S3528-TPP)/2+TPP
  endif
  IF (NO.eq.3.or.NO.eq.4) then
    CALL SUMT (TS,DV,1,8,S1628)
    CALL SUMT (TS,DV,1,5,S1627)
    CALL SUMT (TS,DV,1,6,S1637)
    CALL SUMT (TS,DV,1,3,S1636)
    TF=S1628/4
    TOPL=S1627/2
    TOPS=S1637/2
    TPP=(S1636+S1627)/2
    TOPP=(S1628-TPP)/2+TPP
  endif
TR=TF
TOPR=TOPS
CALL SUMT (TS,DV,1,N,TS2)
114 FORMAT(9F6.1)
113 FORMAT(8F6.1,i3)
  sum=0.0
  do 1301 jh=1,6
1301  sum=sum+w0(jh)
100 format(10f8.3)
  IF (NO.EQ.1) BKK=akLI(real(TS2),DAX1)
  IF (NO.EQ.2) BKK=akLI(real(TS2),DAX2)
  IF (NO.EQ.3) BKK=akLI(real(TS2),DAX3)
  IF (NO.EQ.4) BKK=akLI(real(TS2),DAX4)

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    RAST=TS2-TKS(NO)
450 FORMAT(2X,F5.2,f8.2)
    DO 99 J=1,N
    S1=0
    S2=0
    S3=0
    S4=0
    S5=0
    S6=0
    S7=0
    S8=0
    S9=0
    S10=0
    S11=0
    TS1=TS11(J)
    NN=DV(J)
    DO 400 I=1,NN
    TS2=TSS(GI+1)
    DELTA=0.017453*(0.473*(T0+GI)-0.196E-2*(T0+GI)**2-0.407E-5*
*(T0+GI)**3-0.616)
    A=SIN(0.017453*FI)*SIN(DELTA)
    B=COS(0.017453*FI)*COS(DELTA)
    TZ=12+3.8197*(1.5708-ATAN(-A/B/SQRT(1-(A/B)**2)))
    TV=24-TZ
    S1=S1+DELTA
    S2=S2+A
    S3=S3+B
    S4=S4+TZ
    S5=S5+TV
    A1=-100.*ALOG(AFO)/(TF**2)
    AFL=EXP(-A1*((TS2-TF)/10)**2)
    A1=-100.*ALOG(AFR)/(TR**2)
    ARL=EXP(-A1*((TS2-TR)/10)**2)
    DML=DROST(TS2,TOPL,CL)
    DMS=DROST(TS2,TOPS,CS)
    DMR=DROST(TS2,TOPR,CR)
    R1=TS2-TPP
    IF(R1.LT.0) GOTO 62
    DMP=DROST(R1,TOPP-TPP,CP)
    GOTO 63
62 DMP=0
63 S6=S6+AFL
    S7=S7+ARL

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```

S8=S8+DML
S9=S9+DMS
S10=S10+DMR
S11=S11+DMP
GI=GI+1
400 CONTINUE
  DELTA=S1/DV(J)
  A=S2/DV(J)
  B=S3/DV(J)
  TZ=S4/DV(J)
  TV=S5/DV(J)
  TAUD=TZ-TV
  AFL=S6/DV(J)
  ARL=S7/DV(J)
  DML=S8/DV(J)
  DMS=S9/DV(J)
  DMR=S10/DV(J)
  DMP=S11/DV(J)
  DM=DML+DMS+DMR+DMP
  BL=DML/DM
  BS=DMS/DM
  BR=DMR/DM
  BP=DMP/DM
  Q=12.66*9.0**1.31+315*(A+B)**2.1
  J0=0.5*Q/(TAUD*60)
  IF(NO.EQ.1.OR.NO.EQ.2) TP1=TP11(J)
  IF(NO.EQ.1.OR.NO.EQ.2) TP2=TP22(J)
  IF(NO.EQ.3.OR.NO.EQ.4) TP1=TP33(J)
  IF(NO.EQ.3.OR.NO.EQ.4) TP2=TP44(J)
  TMIN=0
  TMAX=30.
  KSIFL=1.
  IF(TS(J).LT.TP1) GOTO 405
  IF(TS(J).GT.TP2) GOTO 406
  GOTO 466
405 X=(TS(J)-TMIN)/(TP1-TMIN)
  KSIFL=13.7*SIN(0.0774*X)
  GOTO 466
406 X=1-((TS(J)-TP2)/(TMAX-TP2))
  KSIFL=0.955*SIN(1.5705*X)
466 IF(KSIFL.LT.0.8) KSIFL=0.8
  IF(KSIFL.GT.1.0) KSIFL=1.0
  IF(NO.EQ.1.OR.NO.EQ.2) TSS3=TSS2(NO,J+5)

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IF(NO.EQ.1.OR.NO.EQ.2) WN=W0Y(NO,J+5)
IF(NO.EQ.3.OR.NO.EQ.4) TSS3=TSS2(NO,J+6)
IF(NO.EQ.3.OR.NO.EQ.4) WN=W0Y(NO,J+6)
GAMF=W0(J)/WN
GAMF1=GAMF
IF (NO.EQ.1) GAMS=akLI(real(GAMF),DAX6)
IF (NO.EQ.2) GAMS=akLI(real(GAMF),DAX7)
IF (NO.EQ.3) GAMS=akLI(real(GAMF),DAX8)
IF (NO.EQ.4) GAMS=akLI(real(GAMF),DAX9)
GAMF=GAMS
if (J.eq.1) G1=GAMF1
if (J.eq.2) G2=GAMF1
if (J.eq.3) G3=GAMF1
if (J.eq.4) G4=GAMF1
if (J.eq.5) G5=GAMF1
if (J.eq.6) G6=GAMF1
if (J.eq.7) G7=GAMF1

if (NO.EQ.1) then
if ((J.EQ.3).AND.(G2.GT.2.5).AND.(G3.GT.1.5)) GAMF=1.3
if ((J.EQ.6).AND.(G5.GT.1.6).AND.(G6.GT.1.8)) GAMF=1.3
endif

if (NO.EQ.2) then
if((J.EQ.6).AND.(G5.GE.1.3).AND.(G6.GE.2.3))
* GAMF=1.7
  if ((J.EQ.1).AND.(G1.le.0.2).AND.(TS(1).Ge.16.5))
*   GAMF=0.7
endif

if (NO.EQ.3) then
if ((J.EQ.3).AND.(G3.GT.1.7).AND.(TS(3).GT.22))
*   KSIFL=1.3
  if ((J.EQ.1).AND.(G1.GT.1.2).AND.(TS(1).GT.16))
*   KSIFL=1.3
if ((J.EQ.3).AND.(G1.LT.0.2).AND.(G2.LT.0.4).AND.(G3.IT.0.3))
*   GAMF=0.7
endif

if (NO.EQ.4) then
if ((J.EQ.2).AND.(G1.GE.2.5).AND.(G2.GT.1.3))
*   GAMF=1.4
  if ((J.EQ.3).AND.(G1.GE.2.5).AND.(G2.GT.1.3).AND.(G2.GT.1.3))

```

```

*   GAMF=1.2
    endif
455 FORMAT (2X,6F8.2,F6.1)
456 FORMAT (2X,F8.2)
    JJ=J0/(1.+0.5*LL)
    F0L=BKK(NO)*581.4*JJ/(BKK(NO)+581.4*JJ)
    FTL=AFL*F0L*KSIFL*GAMF
    FL=0.68*FTL*LL*TAUD*0.1
    DMM=FL-ARL*(0.015*M+0.28*FL)
    R5=2*TOPP-TPP
    V1=0.3*ML*TS1/(R5-2.*TOPL)
    V2=0.3*MS*TS1/(R5-2.*TOPS)
    V3=0.3*MR*TS1/(R5-2.*TOPR)
    IF(TS2.LT.2*TOPL) V1=0
    IF(TS2.LT.2*TOPS) V2=0
    IF(TS2.LT.2*TOPR) V3=0
    ML=ML+(BL*DMM-V1)*DV(J)
    MS=MS+(BS*DMM-V2)*DV(J)
    MR=MR+(BR*DMM-V3)*DV(J)
    MP=MP+(BP*DMM+V1+V2+V3)*DV(J)
    M=ML+MS+MR+MP
    IF((BL*DMM-V1)*DV(J).GE.0) LL=LL+(BL*DMM-V1)*DV(J)/ZL
    IF((BL*DMM-V1)*DV(J).LT.0) LL=LL+(BL*DMM-V1)*DV(J)/(ZL*0.3)
    IF(LL.LT.0) LL=0.001
    J1=J1+1
99 CONTINUE
    J1=J1-1
    RETURN
    END

subroutine nnd(mm,ii,jj,n)
if(ii.le.10) jn=2
if(ii.gt.10.and.ii.le.20) jn=1
if(ii.gt.20) jn=0
n=(jj-mm)*3-jn
return
end

SUBROUTINE GARM(N5,K,Y)
DIMENSION Y(50),YR(50),VES(50),X(50),Y1(20),YB(20)
COMMON /BL4/ TEN
INTEGER A,X,X1,VES
REAL M

```

```

A=1
DO 4 I=1,N5
YR(I)=0
4 VES(I)=0
N1=N5-K+1
DO 5 J=1,N1
X1=A
X2=0
K1=A
DO 7 I=1,K
X1=X1+X2
X2=1
X(I)=X1
Y1(I)=Y(K1)
7 K1=K1+1
CALL OPT(K,X,Y1,YB)
K2=1
K3=K-1+A
DO 10 I=A,K3
YR(I)=YR(I)+YB(K2)
VES(I)=VES(I)+1
10 K2=K2+1
5 A=A+1
DO 8 I=1,N5
8 YR(I)=YR(I)/VES(I)
B=1.
WS=0
M=0
N2=N5-1
DO 9 I=1,N2
M=M+1./(N5-B)
WS=WS+M*(YR(I+1)-YR(I))/(N5-1)
9 B=B+1
TEN=YR(N5)+WS
RETURN
END

```

```

SUBROUTINE OPT(K,X,Y1,YB)
DIMENSION X(50),Y1(20),YB(20)
INTEGER X
S1=0
S2=0
S3=0

```

```

S4=0
S5=0
DO 1 I=1,K
S1=S1+X(I)
1 S2=S2+Y1(I)
S1=S1/K
S2=S2/K
DO 2 I=1,K
R1=X(I)-S1
R2=Y1(I)-S2
S3=S3+R1**2
S4=S4+R2**2
2 S5=S5+R1*R2
if ((s3*s4).le.0) then
    rm=0
    else
RM=S5/SQRT(S3*S4)
    endif
DO 3 I=1,K
R=RM*SQRT(S4/K)/SQRT(S3/K)
3 YB(I)=R*(X(I)-S1)+S2
RETURN
END

```

```

SUBROUTINE TNUL(N1,N2)
COMMON/BL1/T0
INTEGER T0
DIMENSION MA(12)
DATA MA/0,31,59,90,120,151,181,212,243,273,304,334/
L=MA(N2)+N1
T0=L-79
IF(N2.EQ.3.AND.N1.LE.20) T0=1
RETURN
END

```

```

SUBROUTINE DVV(N1,N2,N1V,N2V)
COMMON/BL2/DV,JC,N
DIMENSION DV(15),KD(30)
INTEGER DV
DATA KD/10,10,11,10,10,8,10,10,11,10,10,10,10,10,11,
* 10,10,10,10,10,11,10,10,11,10,10,10,10,10,11/
IF(N1.LE.10) NP=1
IF(N1.GT.10.AND.N1.LE.20) NP=2

```

```

IF(N1.GT.20) NP=3
IF(N1V.LE.10) NNP=1
IF(N1V.GT.10.AND.N1V.LE.20) NNP=2
IF(N1V.GT.20) NNP=3
JC=3*(N2-1)+NP
JCC=3*(N2V-1)+NNP
N=JCC-JC+1
DO 1 J=1,N
DV(J)=KD(JC-1+J)
1 CONTINUE
IF(N1.LE.10) DV(1)=10-N1+1
IF(N1.GT.10.AND.N1.LE.20) DV(1)=20-N1+1
IF(N1.GT.20) DV(1)=KD(JC)-(N1-20)+1
IF(N1V.LE.10) DV(N)=N1V
IF(N1V.GT.10.AND.N1V.LE.20) DV(N)=N1V-10
IF(N1V.GT.20) DV(N)=N1V-20
RETURN
END

```

```

SUBROUTINE KDEK(ND,MD,N1C,N2C)
COMMON /BL5/KH
IF(MD.EQ.4.AND.ND.EQ.10) GOTO 1
IF(MD.EQ.4.AND.ND.EQ.20) GOTO 2
IF(MD.EQ.4.AND.ND.EQ.30) GOTO 3
IF(MD.EQ.5.AND.ND.EQ.10) GOTO 4
IF(MD.EQ.5.AND.ND.EQ.20) GOTO 5
IF(MD.EQ.5.AND.ND.EQ.31) GOTO 6
IF(MD.EQ.6.AND.ND.EQ.10) GOTO 7
IF(MD.EQ.6.AND.ND.EQ.21) GOTO 8
IF(MD.EQ.6.AND.ND.EQ.30) GOTO 9
IF(MD.EQ.7.AND.ND.EQ.10) GOTO 10
IF(MD.EQ.7.AND.ND.EQ.21) GOTO 11
IF(MD.EQ.7.AND.ND.EQ.31) GOTO 12
GOTO 50
1 IF(N2C.EQ.4.AND.N1C.LE.10)KH=1
GOTO 50
2 IF(N2C.EQ.4.AND.N1C.LE.10)KH=2
IF(N2C.EQ.4.AND.(N1C.GT.10.AND.N1C.LE.20))KH=1
GOTO 50
3 IF(N2C.EQ.4.AND.N1C.LE.10)KH=3
IF(N2C.EQ.4.AND.(N1C.GT.10.AND.N1C.LE.20))KH=2
IF(N2C.EQ.4.AND.N1C.GT.20)KH=1
GOTO 50

```

4 IF(N2C.EQ.4.AND.N1C.LE.10)KH=4  
 IF(N2C.EQ.4.AND.(N1C.GT.10.AND.N1C.LE.20))KH=3  
 IF(N2C.EQ.4.AND.N1C.GT.20)KH=2  
 IF(N2C.EQ.5.AND.N1C.LE.10)KH=1  
 GOTO 50

5 IF(N2C.EQ.4.AND.N1C.LE.10)KH=5  
 IF(N2C.EQ.4.AND.(N1C.GT.10.AND.N1C.LE.20))KH=4  
 IF(N2C.EQ.4.AND.N1C.GT.20)KH=3  
 IF(N2C.EQ.5.AND.N1C.LE.10)KH=2  
 IF(N2C.EQ.5.AND.(N1C.GT.10.AND.N1C.LE.20))KH=1  
 GOTO 50

6 IF(N2C.EQ.4.AND.N1C.LE.10)KH=6  
 IF(N2C.EQ.4.AND.(N1C.GT.10.AND.N1C.LE.20))KH=5  
 IF(N2C.EQ.4.AND.N1C.GT.20)KH=4  
 IF(N2C.EQ.5.AND.N1C.LE.10)KH=3  
 IF(N2C.EQ.5.AND.(N1C.GT.10.AND.N1C.LE.20))KH=2  
 IF(N2C.EQ.5.AND.N1C.GT.20)KH=1  
 GOTO 50

7 IF(N2C.EQ.4.AND.N1C.LE.10)KH=7  
 IF(N2C.EQ.4.AND.(N1C.GT.10.AND.N1C.LE.20))KH=6  
 IF(N2C.EQ.4.AND.N1C.GT.20)KH=5  
 IF(N2C.EQ.5.AND.N1C.LE.10)KH=4  
 IF(N2C.EQ.5.AND.(N1C.GT.10.AND.N1C.LE.20))KH=3  
 IF(N2C.EQ.5.AND.N1C.GT.20)KH=2  
 IF(N2C.EQ.6.AND.N1C.LE.10)KH=1  
 GOTO 50

8 IF(N2C.EQ.4.AND.N1C.LE.10)KH=8  
 IF(N2C.EQ.4.AND.(N1C.GT.10.AND.N1C.LE.20))KH=7  
 IF(N2C.EQ.4.AND.N1C.GT.20)KH=6  
 IF(N2C.EQ.5.AND.N1C.LE.10)KH=5  
 IF(N2C.EQ.5.AND.(N1C.GT.10.AND.N1C.LE.20))KH=4  
 IF(N2C.EQ.5.AND.N1C.GT.20)KH=3  
 IF(N2C.EQ.6.AND.N1C.LE.10)KH=2  
 IF(N2C.EQ.6.AND.(N1C.GT.10.AND.N1C.LE.20))KH=1  
 GOTO 50

9 IF(N2C.EQ.4.AND.N1C.LE.10)KH=9  
 IF(N2C.EQ.4.AND.(N1C.GT.10.AND.N1C.LE.20))KH=8  
 IF(N2C.EQ.4.AND.N1C.GT.20)KH=7  
 IF(N2C.EQ.5.AND.N1C.LE.10)KH=6  
 IF(N2C.EQ.5.AND.(N1C.GT.10.AND.N1C.LE.20))KH=5  
 IF(N2C.EQ.5.AND.N1C.GT.20)KH=4  
 IF(N2C.EQ.6.AND.N1C.LE.10)KH=3  
 IF(N2C.EQ.6.AND.(N1C.GT.10.AND.N1C.LE.20))KH=2

```

IF(N2C.EQ.6.AND.N1C.GT.20)KH=1
GOTO 50
10 IF(N2C.EQ.4.AND.N1C.LE.10)KH=10
IF(N2C.EQ.4.AND.(N1C.GT.10.AND.N1C.LE.20))KH=9
IF(N2C.EQ.4.AND.N1C.GT.20)KH=8
IF(N2C.EQ.5.AND.N1C.LE.10)KH=7
IF(N2C.EQ.5.AND.(N1C.GT.10.AND.N1C.LE.20))KH=6
IF(N2C.EQ.5.AND.N1C.GT.20)KH=5
IF(N2C.EQ.6.AND.N1C.LE.10)KH=4
IF(N2C.EQ.6.AND.(N1C.GT.10.AND.N1C.LE.20))KH=3
IF(N2C.EQ.6.AND.N1C.GT.20)KH=2
GOTO 50
11 IF(N2C.EQ.4.AND.N1C.LE.10)KH=11
IF(N2C.EQ.4.AND.(N1C.GT.10.AND.N1C.LE.20))KH=10
IF(N2C.EQ.4.AND.N1C.GT.20)KH=9
IF(N2C.EQ.5.AND.N1C.LE.10)KH=8
IF(N2C.EQ.5.AND.(N1C.GT.10.AND.N1C.LE.20))KH=7
IF(N2C.EQ.5.AND.N1C.GT.20)KH=6
IF(N2C.EQ.6.AND.N1C.LE.10)KH=5
IF(N2C.EQ.6.AND.(N1C.GT.10.AND.N1C.LE.20))KH=4
IF(N2C.EQ.6.AND.N1C.GT.20)KH=3
GOTO 50
12 IF(N2C.EQ.4.AND.N1C.LE.10)KH=12
IF(N2C.EQ.4.AND.(N1C.GT.10.AND.N1C.LE.20))KH=11
IF(N2C.EQ.4.AND.N1C.GT.20)KH=10
IF(N2C.EQ.5.AND.N1C.LE.10)KH=9
IF(N2C.EQ.5.AND.(N1C.GT.10.AND.N1C.LE.20))KH=8
IF(N2C.EQ.5.AND.N1C.GT.20)KH=7
IF(N2C.EQ.6.AND.N1C.LE.10)KH=6
IF(N2C.EQ.6.AND.(N1C.GT.10.AND.N1C.LE.20))KH=5
IF(N2C.EQ.6.AND.N1C.GT.20)KH=4
50 RETURN
END
SUBROUTINE SUMT(TS,DV,ND1,ND2,TS2)
COMMON /BL6/TSS,TS11
DIMENSION DV(15),TS(15),TSS(198),TS11(15)
INTEGER DV
TS2=0
J2=0
DO 300 J=ND1,ND2
NN=DV(J)
DO 310 I=1,NN
TS1=TS(J)-5

```

```

IF(TS1.LT.0) TS1=0
TS2=TS2+TS1
TSS(I+J2)=TS2
333 format (2i5)
310 CONTINUE
J2=J2+DV(J)
TS11(J)=TS1
300 CONTINUE
RETURN
END

```

!!!!-----

с ? Функция КУСОЧНО-ЛИНЕЙНОЙ ИНТЕРПОЛЯЦИИ ?

```

real function aKLI(X,D)
parameter (magic=1.234)
real X, D(0:*)
n=nint(D(0)) !кол-во точек
if (D(3*n) .eq. magic) goto 1 ! Не 1-й раз

```

с Инициализация

```

do 2 i=1,n-1 !вычисляем Ai
2 D(2*n+i)=(D(n+i+1)-D(n+i))/(D(i+1)-D(i))
D(3*n)=magic

```

с-----

```

1 continue
do 3 i=1,n !Поиск отрезка
3 if (X .LT. D(i)) goto 4 ! X<Xi

```

с Вышли из цикла ==> X больше ООФ

```

goto 99
4 if (i.eq.1) goto 99 ! X меньше ООФ

```

с Норма

```

i=i-1 ! i - на начало отрезка
Y=D(n+i) + D(2*n+i)*(X-D(i))

```

с Yi + Ai \* (X - Xi)

```

aKli = Y
return

```

99 continue

```

write(6,*), '*** aKLI: X=', X, ' вне ООФ !'

```

с stop

```

end

```

```

subroutine padl(N,xn)
character xn*6, ll*1
xn='000000' ! z=N

```

```

do 1 i=1,6
x=mod(z,10.)
XN='0'//xn(2:6)
IF (X.LE.0.) EXIT
y=int(z/10)
write (11,11) int(x)
SELECT CASE (i)
case (1)
XN=XN(1:6-I)//LL
case (2:6)
XN=XN(1:6-I)//LL//xn(6-i+2:6)
end select
11 format(i1)
z=y
1 continue
return
end

```

!=====

```

subroutine opruro(NOBL,KKK,METHOD,DATEPR,PROGNOZ)
character datepr*10, method*10, eee*6, eee2*3, eee3*3
OPEN(UNIT=2,ACCESS='APPEND',FILE='opruro.opr')

write (eee,11) prognoz
11 format(f6.1)
do while (index(eee,' ').gt.0)
eee(index(eee,' '):index(eee,' '))='0'
end do

write (eee2,13) nobl
13 format(i3)
do while (index(eee2,' ').gt.0)
eee2(index(eee2,' '):index(eee2,' '))='0'
end do

write (eee3,14) kkk
14 format(i3)
do while (index(eee3,' ').gt.0)
eee3(index(eee3,' '):index(eee3,' '))='0'
end do

do while (index(datepr,' ').gt.0)
datepr(index(datepr,' '):index(datepr,' '))='0'
end do

```

```

if(index(datepr,'20.').gt.0) then ! -Γ-πΓ¬ 20-Γ - 21-Γ
datepr='21.'//datepr(4:len(datepr))
endif

if(index(datepr,'31.07').gt.0) then ! -Γ-πΓ¬ 31-Γ - 1-Γ
datepr='01.08'//datepr(6:len(datepr))
endif

WRITE(2,101) eee2,eee3,METHOD,DATEPR,eee
101 FORMAT(a3,',',A3,',',A10,',',A10,',',a6)
CLOSE(2)
return
end

subroutine rustbl(obl,NOBL,KKK,DATEPR,TEN,C1,PR,S5,VAL)
character datepr*10, eee*6, EEE1*6, eee2*3,eee3*3, eee4*8,
* eee5*10, eee6*5, obl*20
OPEN(UNIT=2,ACCESS='APPEND',FILE='rosdta.dta')

write (eee4,15) s5
15 format(f8.2)
do while (index(eee4,' ').gt.0)
eee4(index(eee4,' '):index(eee4,' '))='0'
end do

write (eee5,16) val
16 format(f10.2)
do while (index(eee5,' ').gt.0)
eee5(index(eee5,' '):index(eee5,' '))='0'
end do

write (eee6,17) c1
17 format(f5.1)
do while (index(eee6,' ').gt.0)
eee6(index(eee6,' '):index(eee6,' '))='0'
end do

write (eee,11) pr
11 format(f6.1)
do while (index(eee,' ').gt.0)
eee(index(eee,' '):index(eee,' '))='0'
end do

```

```

write (eee1,11) TEN
do while (index(eee1,' ').gt.0)
eee1(index(eee1,' '):index(eee1,' '))='0'
end do

write (eee2,13) nobl
13 format(i3)
do while (index(eee2,' ').gt.0)
eee2(index(eee2,' '):index(eee2,' '))='0'
end do

write (eee3,14) kkk
14 format(i3)
do while (index(eee3,' ').gt.0)
eee3(index(eee3,' '):index(eee3,' '))='0'
end do

do while (index(datepr,' ').gt.0)
datepr(index(datepr,' '):index(datepr,' '))='0'
end do

if(index(datepr,'20.').gt.0) then ! -Г-пГ- 20-Г - 21-Г
datepr='21. '//datepr(4:len(datepr))
endif

if(index(datepr,'31.07').gt.0) then ! -Г-пГ- 31-Г - 1-Г
datepr='01.08'//datepr(6:len(datepr))
endif

WRITE(2,144) obl,eee2,eee3,DATEPR,eee1,eee6,eee,eee4,eee5
144 FORMAT(a20,',',a3,',',A3,',',A10,',',a6,',',a5,',',a6,',',a8,
* ',',a10)
CLOSE(2)
return
end

```

***Расчет урожайности яровой пшеницы в Уральском регионе (фрагменты)***

cv РАСЧЕТ УРОЖАЙНОСТИ ЯРОВОЙ ПШЕНИЦЫ ПО УРАЛУ 1-СВЕРДЛОВСКАЯ,  
2- ПЕРМСКАЯ,

cv 3- ЧЕЛЯБИНСКАЯ, 4- КУРГАНСКАЯ

DIMENSION N11(4),N22(4),N11V(4),N22V(4),BCC(20),

\*SBM(4),TSS(4,10),Y1(4,70),YR(70),STR(39),

```

*W0C(10),TSC(10),W0(10),TS(10),DV(10),Y(70),Y2(10),ky(10),
*W0Y(4,10),K5(4),IG1(70),IG2(70),IGG2(15),S5(20)
CHARACTER*80 OBL,ZAG,FA1
COMMON /BL1/T0
COMMON /BL3/MP/BL4/TEN
REAL MP
!!!!-----
integer nobl,kkk
character datepr*10, method*10
real prognos
!!!!-----
INTEGER T0,DV
...
write(datepr,9991) nd,md,ng
9991 format(i2,'.0',i1,'.',i4)
METHOD="jrpURAL"
WRITE(6,104)ZAG
WRITE(6,188) ND,MD,NG
write (6,110)
if(MD.EQ.6) IDEK=4
if(MD.EQ.7) IDEK=7 ! КОЛ-ВО ДЕКАД для прогноза
N=10 ! КОЛ-ВО ДЕКАД с 2дек.мая по 2дек.августа
NBEG=14 ! номер начальной декады
NMIN=1971
NMAX=NG
WRITE(6,111)
WRITE(6,112)
WRITE(6,110)
KC=NMAX-NMIN
IGG1=NA4 !1996 ! НАЧАЛЬНЫЙ ГОД ПРОГНОЗА
if (NA4.eq.0) IGG1=NMAX
IGPROG=NMAX-IGG1+1 ! КОЛ-ВО ЛЕТ ПРОГНОЗА
I10=0
DO 203 i=1,IGPROG
IGG2(I)=IGG1+I10
203 I10=I10+1
DO 30 I5=1,1 !4 !КОЛ-ВО ОБЛАСТЕЙ
! NO=I5
READ(5,104) OBL
READ(5,119) (IG1(I),I=1,KC) ! ВВОД ЛЕТ
READ(5,104) FA1
READ(5,105) (YR(L),L=1,KC) ! ВВОД УРОЖАЙНОСТИ
READ(5,104) FA1

```

```

        READ(5,129) (IG2(I),I=1,1) !IGPROG+1) ! ВВОД ПЛОЩАДЕЙ
        READ(5,118) (S5(L),L=1,1)
!!!!-----
...
        KKK=007
        DO 1 J=1,KC
            Y1(NO,J)=YR(J) !!! Y1 (i5,j)
1 CONTINUE
        KGAR=IGG1-NMIN-1
        MY=IGG1-NMIN-5
        DO 300 I55=1,1 !IGPROG ! КОЛ-ВО ЛЕТ ПРОГНОЗА
            MY=MY+1
        READ(5,104) ZAG
        READ(5,104) FA1
        READ (5,100) (TSC(J),J=1,IDEK)
            READ(5,104) FA1
            READ(5,100) (W0C(J),J=1,IDEK)
...
        CALL DMPP(W0,TS,DV,T0,NO,RAST,W0Y,TSS,J1,J3,n,md)
        C1=MP/SBM(NO)
        IF(C1.GT.1.45)C1=1.45
        PR=C1*TEN
        C1=C1*100.
        VAL=PR*S5(I55)*0.1
40 WRITE(6,113)NO,OBL,IGG2(i55),TEN,C1,PR,S5(I55),VAL
        PROGNOZ=PR
...
        BCC(I55)=PR
300 continue
        if (IGPROG.EQ.1) goto 30
        READ(5,104) FA1
...
        END

SUBROUTINE DMPP(W0,TS,DV,T0,NO,RAST,W0Y,TSS2,JN,J3,n,md)
DIMENSION W0(10),TS(10),DV(10),TSS(200),W0Y(4,10),TSS2(4,10),
*TS11(10),BKK(4),AFOO(4),AFRO(4),FII(4),TKS(4),
*TP11(10),TP22(10),sumoc(27)
COMMON /BL3/MP
COMMON /BL6/TSS,TS11
INTEGER T0,DV,GI
REAL DAX10(0:75),DAX1(0:75),DAX2(0:75),DAX3(0:75),DAX4(0:75),
* DAX11(0:75),DAX12(0:75),DAX13(0:75)

```

```

REAL M,ML,MS,MR,MP,LL,KSIFL,J0,JJ
...
sum=0.0
  do 1301 jh=1,n
    sum=sum+w0(jh)
1301 sumoc(jh)=sum
100 format(10f8.3)
  IF (NO.EQ.1) BKK=akLI(real(TS2),DAX1)
    IF (NO.EQ.2) BKK=akLI(real(TS2),DAX2)
    IF (NO.EQ.3) BKK=akLI(real(TS2),DAX3)
    IF (NO.EQ.4) BKK=akLI(real(TS2),DAX4)
  RAST=TS2-TKS(NO)
  IF(NO.EQ.3.AND.RAST.GE.200) BKK=18
  IF(NO.EQ.3.AND.RAST.GT.45.AND.RAST.LT.120) BKK=23
  IF(NO.EQ.3.AND.RAST.GE.170.AND.RAST.LT.200) BKK=18.5
  IF(NO.EQ.4.AND.MD.EQ.6.AND.RAST.LT.-10) BKK=22
450 FORMAT(2X,'BKK=',F5.2, F8.2)
  DO 99 J=JN,J3
...
DO 400 I=1,NN
TS2=TSS(GI+1)
DELTA=0.017453*(0.473*(T0+GI)-0.196E-2*(T0+GI)**2-0.407E-5*
*(T0+GI)**3-0.616)
A=SIN(0.017453*FI)*SIN(DELTA)
B=COS(0.017453*FI)*COS(DELTA)
TZ=12+3.8197*(1.5708-ATAN(-A/B/SQRT(1-(A/B)**2)))
TV=24-TZ
S1=S1+DELTA
S2=S2+A
S3=S3+B
S4=S4+TZ
S5=S5+TV
A1=-100.*ALOG(AFO)/(TF**2)
AFL=EXP(-A1*((TS2-TF)/10)**2)
A1=-100.*ALOG(AFR)/(TR**2)
ARL=EXP(-A1*((TS2-TR)/10)**2)
DML=DROST(TS2,TOPL,CL)
DMS=DROST(TS2,TOPS,CS)
DMR=DROST(TS2,TOPR,CR)
R1=TS2-TPP
IF(R1.LT.0) GOTO 62
DMP=DROST(R1,TOPP-TPP,CP)
GOTO 63

```

```

62 DMP=0
63 S6=S6+AFL
   S7=S7+ARL
   S8=S8+DML
   S9=S9+DMS
   S10=S10+DMR
   S11=S11+DMP
   GI=GI+1
400 CONTINUE
...
   Q=12.66*9.0**1.31+315*(A+B)**2.1
   J0=0.5*Q/(TAUD*60)
   TP1=TP11(J)
   TP2=TP22(J)
   TMIN=5.
   TMAX=30.
   KSIFL=1.
   IF(TS(J).LT.TP1) GOTO 405
   IF(TS(J).GT.TP2) GOTO 406
   GOTO 466
405 X=(TS(J)-TMIN)/(TP1-TMIN)
   KSIFL=13.7*SIN(0.0774*X)
   GOTO 466
406 X=1-((TS(J)-TP2)/(TMAX-TP2))
   KSIFL=0.955*SIN(1.5705*X)
466 IF(KSIFL.LT.0.85) KSIFL=0.85
   IF(KSIFL.GT.1) KSIFL=1
   TSS3=TSS2(NO,J)
   WN=W0Y(NO,J)
   GAMF=W0(J)/WN
   GAMF1=GAMF
544 format (f10.3)
      IF (NO.EQ.1) GAMS=aKLI(real(GAMF),DAX10)
      IF (NO.EQ.2) GAMS=aKLI(real(GAMF),DAX11)
      IF (NO.EQ.3) GAMS=aKLI(real(GAMF),DAX12)
      IF (NO.EQ.4) GAMS=aKLI(real(GAMF),DAX13)
      GAMF=GAMS
      if (NO.EQ.2) then
      if ((J.EQ.4).AND.(G4.gt.2.2)) GAMF=1.2
      if ((J.EQ.1).AND.(TS(1).ge.15.5)) KSIFL=1.2
      if ((J.EQ.3).AND.(G3.ge.1.3).AND.(TS(3).ge.16.0)) KSIFL=1.3
      if ((J.EQ.5).AND.(TS(5).ge.21.0)) KSIFL=1.1
      endif

```

```

    if (NO.EQ.3) then
if ((J.EQ.3).AND.(G2.gt.2.0).AND.(G3.gt.1.5)) GAMF=1.4
if ((J.EQ.1).AND.(G1.gt.2.0)) GAMF=1.3
    endif
if (NO.EQ.4) then
if ((J.EQ.3).AND.(G2.gt.1.6).AND.(G3.gt.2.2)) gamf=1.5
if ((J.EQ.6).AND.(G3.lt.0.55).AND.(G4.lt.0.3).AND.(G5.lt.0.2).AND.
*(G6.lt.0.4)) gamf=0.5
    endif
455 FORMAT (2X,6F8.2,F6.1)
    JJ=J0/(1.+0.5*LL)
    F0L=BKK(NO)*301.4*JJ/(BKK(NO)+301.4*JJ)
    FTL=AFL*F0L*KSIFL*GAMF
    FL=0.68*FTL*LL*TAUD*0.1
    DMM=FL-ARL*(0.015*M+0.28*FL)
    R5=2*TOPP-TPP
    V1=0.3*ML*TS1/(R5-2.*TOPL)
    V2=0.3*MS*TS1/(R5-2.*TOPS)
    V3=0.3*MR*TS1/(R5-2.*TOPR)
    IF(TS2.LT.2*TOPL) V1=0
    IF(TS2.LT.2*TOPS) V2=0
    IF(TS2.LT.2*TOPR) V3=0
    ML=ML+(BL*DMM-V1)*DV(J)
    MS=MS+(BS*DMM-V2)*DV(J)
    MR=MR+(BR*DMM-V3)*DV(J)
    MP=MP+(BP*DMM+V1+V2+V3)*DV(J)
    M=ML+MS+MR+MP
    IF((BL*DMM-V1)*DV(J).GE.0) LL=LL+(BL*DMM-V1)*DV(J)/ZL
    IF((BL*DMM-V1)*DV(J).LT.0) LL=LL+(BL*DMM-V1)*DV(J)/(ZL*0.3)
    IF(LL.LT.0) LL=0.001
    J1=J1+1
99 CONTINUE
    J1=J1-1
    RETURN
    END

```

### ***Расчет урожайности картофеля в Уральском регионе (фрагменты)***

С Нумерация областей: 1-Свердловская, 2-Пермская, 3-Челябинская,

с 4-Курганская

DIMENSION N11C(4), N22C(4), N11V(4), N22V(4), W0K(4, 18),

\*SBM(4), TSS(4, 18), Y1(4, 50), YR(50), STR(39),

\*W0C(15), TSC(15), W0(15), TS(15), DV(15), Y(50), t(15), IG1(70)

\*, IG2(20), S5(7, 20), BCC(50), sumoc(27), SSUM(27),

```

*W0Y(4,18),K5(4)
CHARACTER*20 OBL
  CHARACTER*57 ZAG
COMMON /BL1/T0/BL2/DV,JC,N
COMMON /BL3/MP/BL4/TEN/BL5/KH
REAL MP
...
INTEGER T0,DV
...
open (5, file ='karur.dat')
open (6, file ='karur.res')
  READ(5,104)ZAG
READ(5,108)ND,MD,NG, NGf
  write(6,104)ZAG
write(6,108)ND,MD,NG
METHOD="KARUR"
N=9      ! Кол-во декад с 2 дек АПРЕЛЯ по 2 дек августа
KO=4     ! Кол-во областей
k5=16
  nbeg=15
N5=30 !!!KC
...
KC=NMAX-NMIN+1
NMAX=NG-1
NMIN=1971
IGG1=NGf  ! НАЧАЛЬНЫЙ ГОД ПРОГНОЗА
if (NGf.eq.0) IGG1=NG
  KC=NMAX-NMIN+1
IGPROG=NMAX-IGG1+1 ! КОЛ-ВО ЛЕТ ПРОГНОЗА
DO 2 I=1,1 !4 !
READ(5,103)OBL
NO=I
...
DO 1 J=1,KC
  Y1(NO,J)=YR(J)
1 CONTINUE
DO 30 I55=1,1 !IGPROG+1 ! КОЛ-ВО ЛЕТ ПРОГНОЗА
...
DO 3 J=1,n5 !KC
  Y(J)=Y1(NO,J+(IGG1-31-1-1970+I55))
3 CONTINUE
K=16
CALL GARM(N5,K,Y)

```

```

...
N1C=N11C(NO)
N2C=N22C(NO)
CALL TNUL(N1C,N2C)
N1V=N11V(NO)
N2V=N22V(NO)
CALL DVV(N1C,N2C,N1V,N2V)
C IF(N2C.EQ.5.AND.N1C.GT.20)NP=0
IF(N2C.EQ.6.AND.N1C.LE.10)NP=0
IF(N2C.EQ.6.AND.(N1C.GT.10.AND.N1C.LE.20))NP=1
IF(N2C.EQ.6.AND.N1C.GT.20)NP=2
DO 7 J=1,N
TS(J)=TSS(NO,JC-13+J)
W0(J)=W0K(NO,JC-13+J)
...
C2=C1
IF(NO.EQ.1.AND.C1.LT.0.70)C2=0.70
IF(NO.EQ.1.AND.C1.GT.1.35)C2=1.35
C1=C2
PR=C1*TEN
GOTO 44
44 C1=C1*100.
VAL=PR*S5(NO,I55)*0.1
40 WRITE(6,113)OBL,TEN,C1,PR,S5(NO,I55),VAL
write(datepr,9991) nd,md,IGG1+I55-1 !ng
9991 format(i2,'0',i1,',',i4)
PROGNOZ=PR
BCC(I55)=PR
...
30 CONTINUE
2 CONTINUE
...
END

SUBROUTINE DMPP(W0,TS,DV,T0,NO,N,RAST,W0K,TSS2)
DIMENSION W0(15),TS(15),DV(15),W0K(4,18),TSS2(4,18)
DIMENSION TSS(150),TS11(15),TF0(4),BKK(4),FII(4),TKS(4),
*TP11(9),TP22(9),TP33(9),TP44(9), sumoc(27)
REAL M,ML,MS,MR,MP,LL,KSIFL,J0,JJ
INTEGER GI,T0,DV
REAL DAX10(0:54),DAX1(0:33),DAX2(0:30),DAX3(0:30),DAX4(0:27),
*DAX20(0:57),DAX30(0:57),DAX40(0:57)
COMMON /BL3/MP

```

```

...
DROST(TS2,TOPT,CC)=(2.3026*(2./TOPT)*10.**((2.-(2./TOPT)*TS2)*
*1000.*CC)/(1.+10.**((2.-(2./TOPT)*TS2))**2
FI=FII(NO)
GI=0
J1=1
ML=3.5*VL
MS=3.5*VS
MR=3.5*VR
M=ML+MS+MR
MP=0
LL=3.5*SL
PM=3.5*SM
TS2=0
J2=0
DO 300 J=1,N
NN=DV(J)
DO 310 I=1,NN
TS1=TS(J)
IF(TS1-7) 90,89,89
89 TS2=TS2+TS1
90 TSS(I+J2)=TS2
310 CONTINUE
J2=J2+DV(J)
TS11(J)=TS1
300 CONTINUE

```

```

...
IF(NO.EQ.1.AND.RAST.LT.-110) BKK=31
IF(NO.EQ.2.AND.RAST.GT.130) BKK=48
IF(NO.EQ.2.AND.RAST.LT.-100) BKK=26
IF(NO.EQ.3.AND.RAST.LT.150.AND.RAST.GT.80) BKK=40
IF(NO.EQ.4.AND.RAST.LT.-90) BKK=28
450 FORMAT(2X,F5.0, 2X, F8.2, 2X,F5.1)
DO 99 J=1,N

```

```

...
DO 400 I=1,NN
TS2=TSS(GI+1)
DELTA=0.017453*(0.473*(T0+GI)-0.196E-2*(T0+GI)**2-0.407E-5*(T0+GI)
***3-0.616)
A=SIN(0.017453*FI)*SIN(DELTA)
B=COS(0.017453*FI)*COS(DELTA)
TZ=12.+3.8197*(1.5708-ATAN(-A/B/SQRT(1-(A/B)**2)))
TV=24.-TZ

```

```

S1=S1+DELTA
S2=S2+A
S3=S3+B
S4=S4+TZ
S5=S5+TV
A1=-100.*ALOG(TF0(NO))/(TF**2)
eee1=-A1*((TS2-TF)/10.)**2
AFL=EXP(eee1)
A1=-100.*ALOG(0.5)/(TR**2)
eee2=-A1*((TS2-TR)/10.)**2
ARL=EXP(eee2)
IF(TS2.LE.400.) GOTO 1
IF(TS2.GT.400.AND.TS2.LE.600.) GOTO 2
IF(TS2.GT.600.) GOTO 3
1 CL=0.4
  CS=0.48
  CR=0.09
  CP=0.03
  GOTO 4
2 CL=0.3
  CS=0.40
  CR=0.07
  CP=0.23
  GOTO 4
3 CL=0.1
  CS=0.20
  CR=0.03
  CP=0.67
4 DML=DROST(TS2,TOPL,CL)
  DMS=DROST(TS2,TOPL,CS)
  DMR=DROST(TS2,TOPL,CR)
  R1=TS2-TPP
  IF(R1.LT.0.) GO TO 62
  DMP=DROST(R1,TOPL-TPP,CP)
  GO TO 63
62 DMP=0.
63 S6=S6+AFL
  S7=S7+ARL
  S8=S8+DML
  S9=S9+DMS
  S10=S10+DMR
  S11=S11+DMP
  GI=GI+1

```

```

400 CONTINUE
...
  Q=12.66*9.5**1.31+315*(A+B)**2.1
  TP1=TP11(J)
  TP2=TP22(J)
  TMIN=7.
  TMAX=28.
  KSIFL=1.
...
  IF(TS(J).LT.TP1) GOTO 405
  IF(TS(J).GT.TP2) GOTO 406

  GOTO 407
405 X=(TS(J)-TMIN)/(TP1-TMIN)
  KSIFL=13.7*SIN(0.0774*X)
  GOTO 407
406 X=1-(TS(J)-TP2)/(TMAX-TP2)
  KSIFL=0.955*SIN(1.5705*X)
407 IF(KSIFL.LT.0.8)KSIFL=0.8
  IF(KSIFL.GT.1)KSIFL=1

  TSS3=TSS2(NO,J+3)
  WNP=W0K(NO,J+3)
  GAMF=W0(J)/WNP
  GAMF1=GAMF
...
  if (NO.EQ.1) then
    if ((J.EQ.2).AND.(G1.GT.2.3).AND.(G2.GT.1.5)) GAMF=1.7
  endif
  if (NO.EQ.2) then
    if (J.EQ.6.AND.sumoc(6).GT.200) GAMF=1.9
    if ((J.EQ.1).AND.(G1.ge.1.0).AND.(TS(1).ge.17.0)) KSIFL=1.1
  endif
  if (NO.EQ.3) then
    if ((J.EQ.2).AND.(G2.GE.1.6).AND.(TS(2).GE.17.0))GAMF=1.4
      if ((J.EQ.6).AND.(G5.GT.1.5).AND.(G6.GT.2.0)) GAMF=1.4
    if (J.EQ.6.AND.sumoc(6).GT.170) GAMF=1.9
    if ((J.EQ.6).AND.(sumoc(6).LT.90.0).AND.(RAST.GT.140.0))
*   GAMF=0.4
  endif
455 FORMAT(2X,6F8.2,2F8.1)
  J0=0.5*Q/(TAUD*60)
  JJ=J0/(1.+0.50*LL)

```

```
F0L=BKK(NO)*300.*JJ/(BKK(NO)+300.*JJ)
FTL=AFL*F0L*KSIFL*GAMF
FL=0.68*FTL*LL*TAUD*0.1
```

...

```
99 CONTINUE
RETURN
END
```

### ***Расчет урожайности овса в Уральском регионе (фрагменты)***

С Нумерация областей: 1-Свердловская, 2-Пермская, 3-Челябинская,  
с 4-Курганская

```
DIMENSION N11(4),N22(4),N11V(4),N22V(4),
*SBM(4),Y1(4,50),YR(50),STR(39),
*W0C(15),TSC(15),W0(15),TS(15),DV(15),Y(50),t(15),IG1(70),
*IG2(20),S5(4,20),BCC(50),W0Y(4,9),TSS(4,9),K5(4)
```

```
CHARACTER*20 OBL
```

```
CHARACTER*57 ZAG
```

```
COMMON /BL1/T0 /BL2/DV,JC,N
```

```
COMMON /BL3/MP /BL4/TEN /BL5/KH
```

```
REAL MP
```

```
integer nobl,kkk
```

```
character datepr*10, method*10
```

```
real prognos
```

```
INTEGER T0,DV
```

...

```
open (5,file='obec.dat')
```

```
open (6,file='obec.res')
```

```
READ(5,104)ZAG
```

```
READ(5,108)ND,MD,NG, NGf
```

```
open (8,file='ОПРАВДЫВАЕМОСТЬ.txt')
```

```
write(6,104)ZAG
```

```
if(MD.EQ.6) IDEK=3 ! КОЛ-ВО ДЕКАД для прогноза
```

```
if(MD.EQ.7) IDEK=6 ! КОЛ-ВО ДЕКАД для прогноза
```

```
N=9 ! КОЛ-ВО ДЕКАД со 3 дек.мая по 2 дек.августа
```

```
NBEG=15 ! номер начальной декады 3дек.мая
```

```
NMIN=1971
```

```
NMAX=NG
```

```
IGG1=NGf ! НАЧАЛЬНЫЙ ГОД ПРОГНОЗА
```

```
if (NGf.eq.0) IGG1=NG
```

```
KC=NMAX-NMIN ! Общая длина ряда урожайности с 1971г по год прогноза
```

```
I3=IGG1-NMIN-30 !Сдвиг для урожайности для 30-ти лет
```

```
N5=30 !Установлена длина У для гармона
```

IGPROG=NMAX-IGG1+1 ! КОЛ-ВО ЛЕТ ПРОГНОЗА

k5=16

METHOD="ОБЕС"

...

DO 2 I=1,1 !4 !4 Кол-во обдастей

! NO=I ! Номер области

READ(5,103)OBL

...

kkk=003

READ(5,106) (IG1(L),L=1,KC) ! ВВОД ЛЕТ

READ(5,104)ZAG

READ(5,105)(YR(L),L=1,KC)

READ(5,104)ZAG

READ(5,1181) (IG2(L),L=1,IGPROG) ! ВВОД ПЛОЩАДЕЙ

READ(5,118) (S5(NO,L),L=1,IGPROG)

DO 1 J=1,KC

Y1(no,J)=YR(J)

1 CONTINUE

DO 30 I55=1,1 !IGPROG ! КОЛ-ВО ЛЕТ ПРОГНОЗА

READ(5,104) ZAG

READ(5,104) ZAG

READ (5,100) (TSC(L),L=1,IDEK)

READ(5,104) ZAG

READ (5,100) (W0C(J),J=1,IDEK)

DO 9 J=1,6

IF (TSC(J).eq.99.9 .or. W0C(J).eq.99.9) GOTO 30

9 CONTINUE

DO 3 J=1,n5 !KC

Y(J)=Y1(NO,J+IGG1-nmin-31+I55)

3 CONTINUE

K=K5(NO)

CALL GARM(N5,K,Y)

N1C=N11(NO)

N2C=N22(NO)

CALL TNUL(N1C,N2C)

N1V=N11V(NO)

N2V=N22V(NO)

CALL DVV(N1C,N2C,N1V,N2V)

IF(N2C.EQ.5.AND.N1C.GT.20)NP=0

IF(N2C.EQ.6.AND.N1C.LE.10)NP=1

IF(N2C.EQ.6.AND.(N1C.GT.10.AND.N1C.LE.20))NP=2

IF(N2C.EQ.6.AND.N1C.GT.20)NP=3

```

DO 7 J=1,N
TS(J)=TSS(NO,J)
W0(J)=W0Y(NO,J)
7 CONTINUE
CALL KDEK(ND,MD,N1C,N2C)
DO 8 J=1,KH
TS(J)=TSC(J+NP)
W0(J)=W0C(J+NP)
8 CONTINUE
CALL DMPP(W0,TS,DV,T0,NO,N,RAST,W0Y,TSS,MD)
C1=MP/SBM(NO)
...
PR=C1*TEN
C1=C1*100.
VAL=PR*S5(NO,I55)*0.1
40 WRITE(6,113)OBL,TEN,C1,PR,S5(NO,I55),VAL
9991 format(i2,'.0',i1,'.',i4)
PROGNOZ=PR
BCC(I55)=PR
...
30 CONTINUE
IGG=IGPROG-1
2 CONTINUE
...
END

SUBROUTINE DMPP(W0,TS,DV,T0,NO,N,RAST,W0Y,TSS2,MD)
DIMENSION W0(15),TS(15),DV(15),TSS(198),W0Y(4,9),TSS2(4,9),
*TS11(15),BKK(4),AFOO(4),AFRO(4),FII(4),TKS(4),
*TP11(9),TP22(9),TP33(9),TP44(9),NG(4),BKK1(4)
COMMON /BL3/MP
COMMON /BL6/TSS,TS11
INTEGER T0,DV,GI
REAL DAX1(0:54),DAX2(0:54),DAX3(0:54),DAX4(0:54),
* DAX6(0:78),DAX7(0:78),DAX8(0:78),DAX9(0:78)
REAL M,ML,MS,MR,MP,LL,KSIFL,J0,JJ
...
DROST(TS2,TOPT,CC)=(2.3026*(2./TOPT)*10.**((2.-(2./TOPT)*TS2)*
*1000.*CC)/(1.+10.**((2.-(2./TOPT)*TS2))**2
GI=0
J1=1
ML=NG(NO)*VL

```

```

MS=NG(NO)*VS
MR=NG(NO)*VR
MP=0
M=ML+MS+MR
LL=NG(NO)*SL
FI=FII(NO)
ZL=ZZL
AFO=AFOO(NO)
AFR=AFRO(NO)
  IF (NO.eq.1.or.NO.eq.2) then
    CALL SUMT (TS,DV,1,9,S3528)
    CALL SUMT (TS,DV,1,6,S3527)
    CALL SUMT (TS,DV,1,7,S3537)
    CALL SUMT (TS,DV,1,4,S3536)
    TF=S3528/4
    TOPL=S3527/2
    TOPS=S3537/2
    TPP=(S3536+S3527)/2
    TOPP=(S3528-TPP)/2+TPP
  endif
  IF (NO.eq.3.or.NO.eq.4) then
    CALL SUMT (TS,DV,1,9,S1628)
    CALL SUMT (TS,DV,1,6,S1627)
    CALL SUMT (TS,DV,1,7,S1637)
    CALL SUMT (TS,DV,1,4,S1636)
    TF=S1628/4
    TOPL=S1627/2
    TOPS=S1637/2
    TPP=(S1636+S1627)/2
    TOPP=(S1628-TPP)/2+TPP
  endif
TR=TF
TOPR=TOPS
CALL SUMT (TS,DV,1,N,TS2)
114 FORMAT(9F6.1)
113 FORMAT(8F6.1,i3)
22  format (F8.3)
  RAST=TS2-TKS(NO)
  BKK(NO)=BKK1(NO)
  IF (NO.EQ.1.AND.RAST.le.-30.)BKK(NO)=19.5
  IF (NO.EQ.1.AND.RAST.gt.75.AND.RAST.le.120.)BKK(NO)=20.5
  IF (NO.EQ.1.AND.RAST.gt.120.)BKK(NO)=21.

```

```

IF (NO.EQ.2.AND.RAST.le.-30.)BKK(NO)=18.0
  IF (NO.EQ.2.AND.RAST.gt.100.)BKK(NO)=19.5

  IF (NO.EQ.3.AND.RAST.gt.80.AND.RAST.LE.130)BKK(NO)=20.0
  IF (NO.EQ.3.AND.RAST.gt.250.)BKK(NO)=18.0

IF (MD.eq.6.AND.NO.EQ.4.AND.RAST.lt.-45.)BKK(NO)=19.0

DO 99 J=1,N
...
DO 400 I=1,NN
TS2=TSS(GI+1)
DELTA=0.017453*(0.473*(T0+GI)-0.196E-2*(T0+GI)**2-0.407E-5*
*(T0+GI)**3-0.616)
A=SIN(0.017453*FI)*SIN(DELTA)
B=COS(0.017453*FI)*COS(DELTA)
TZ=12+3.8197*(1.5708-ATAN(-A/B/SQRT(1-(A/B)**2)))
TV=24-TZ
S1=S1+DELTA
S2=S2+A
S3=S3+B
S4=S4+TZ
S5=S5+TV
A1=-100.*ALOG(AFO)/(TF**2)
AFL=EXP(-A1*((TS2-TF)/10)**2)
A1=-100.*ALOG(AFR)/(TR**2)
ARL=EXP(-A1*((TS2-TR)/10)**2)
...
R1=TS2-TPP
IF(R1.LT.0) GOTO 62
DMP=DROST(R1,TOPP-TPP,CP)
GOTO 63
62 DMP=0
63 S6=S6+AFL
...
400 CONTINUE
...
Q=12.66*9.0**1.31+315*(A+B)**2.1
J0=0.5*Q/(TAUD*60)
IF(NO.EQ.1.OR.NO.EQ.2) TP1=TP11(J)
IF(NO.EQ.1.OR.NO.EQ.2) TP2=TP22(J)
IF(NO.EQ.3.OR.NO.EQ.4) TP1=TP33(J)
IF(NO.EQ.3.OR.NO.EQ.4) TP2=TP44(J)

```

```

TMIN=5.
TMAX=30.
  KSIFL=1.
  IF(TS(J).LT.TP1) GOTO 405
  IF(TS(J).GT.TP2) GOTO 406
  GOTO 466
405 X=(TS(J)-TMIN)/(TP1-TMIN)
  KSIFL=13.7*SIN(0.0774*X)
  GOTO 466
406 X=1-((TS(J)-TP2)/(TMAX-TP2))
  KSIFL=0.955*SIN(1.5705*X)
466 continue
  IF(KSIFL.LT.0.8) KSIFL=0.8
  IF(KSIFL.GT.1.0) KSIFL=1.0

  IF(NO.EQ.1.OR.NO.EQ.2) TSS3=TSS2(NO,J)
  IF(NO.EQ.1.OR.NO.EQ.2) WN=W0Y(NO,J)
  IF(NO.EQ.3.OR.NO.EQ.4) TSS3=TSS2(NO,J)
  IF(NO.EQ.3.OR.NO.EQ.4) WN=W0Y(NO,J)
  GAMF=W0(J)/WN
  GAMF1=GAMF
...
  if (NO.EQ.2) then
  if (J.EQ.1) GAMF=1.0
  if ((J.EQ.6).AND.(G5.GE.1.2).AND.(G6.GE.2.0)) GAMF=1.5
    endif
  if (NO.EQ.3) then
  if ((J.EQ.3).AND.(G1.GT.1.6).AND.(G2.GT.1.6)) GAMF=1.5
  if ((MD.EQ.6).AND.(J.EQ.3).AND.(G1.LT.1.0).AND.(G2.LT.1.0).AND.
* (G3.LT.1.0).AND.(RAST.GE.130)) GAMF=0.8
  if ((J.EQ.3).AND.(G2.GE.1.2).AND.(TS(2).GE.17.0)) KSIFL=1.2
    if ((J.EQ.4).AND.(G4.GE.1.7).AND.(TS(4).GE.18.0)) KSIFL=1.2
  endif

  if (NO.EQ.4) then
  if ((J.EQ.3).AND.(G1.GT.1.6).AND.(G2.GT.2.3).AND.(G3.GT.1.1))
* GAMF=1.2
  if ((J.EQ.6).AND.(G5.GE.1.2).AND.(G6.GE.2.0)) GAMF=1.5
    endif
455 FORMAT (2X,6F8.2,F6.1)
456 FORMAT (2X,F8.2)
...
99 CONTINUE

```

```
J1=J1-1
RETURN
END
```

***Расчет урожайности озимой ржи в Уральском регионе (фрагменты)***

```
C 1-ПЕРМСКАЯ ОБЛАСТЬ
C 2-СВЕРДЛОВСКАЯ ОБЛАСТЬ
C 3-ЧЕЛЯБИНСКАЯ ОБЛАСТЬ
C 4-КУРГАНСКАЯ ОБЛАСТЬ
DIMENSION N11C(4),N22C(4),N11V(4),N22V(4),W00(4,18),
*SBM(4),TSS(4,18),Y1(4,50),YR(50),STR(39),
*W0C(15),TSC(15),W0(15),TS(15),DV(15),Y(50),t(15),IG1(70)
*,IG2(20),S5(4,20),RRR(21),BCC(50)
CHARACTER*20 OBL
CHARACTER*57 ZAG
COMMON /BL1/T0/BL2/DV,JC,N
COMMON /BL3/MP/BL4/TEN/BL5/KH
REAL MP
integer nobl,kkk
character datepr*10, method*10
real prognos
INTEGER T0,DV
...
OPEN(UNIT=5, FILE="ORDUR.DAT")
OPEN(UNIT=6, FILE="ORDUR.RES")
nik=4
READ(5,104)ZAG
READ(5,108)ND,MD,NG, NGf
k5=10
METHOD="ORDUR  "
...
NMAX=NG-1
NMIN=1970
IGG1=NGf ! НАЧАЛЬНЫЙ ГОД ПРОГНОЗА
if (NGf.eq.0) IGG1=NG
KC=NMAX-NMIN+1
IGPROG=NMAX-IGG1+1 ! КОЛ-ВО ЛЕТ ПРОГНОЗА
DO 2 I=1,1 !nik !4
READ(5,103)OBL
...
IF (NOBL.EQ.138) NO=1
IF (NOBL.EQ.139) NO=2
IF (NOBL.EQ.140) NO=3
```

```

IF (NOBL.EQ.141) NO=4
  KKK=009
  READ(5,106) (IG1(L),L=1,KC) ! ВВОД ЛЕТ
    READ(5,104)ZAG
    READ(5,105)(YR(L),L=1,KC)
  READ(5,104)ZAG
  READ(5,1181) (IG2(L),L=1,IGPROG+1) ! ВВОД ПЛОЩАДЕЙ
  READ(5,118) (S5(NO,L),L=1,IGPROG+1)
  DO 1 J=1,KC
    Y1(NO,J)=YR(J)
  1 CONTINUE
  DO 30 I55=1,1 !IGPROG+1 ! КОЛ-ВО ЛЕТ ПРОГНОЗА
...
  DO 3 J=1,N5
    Y(J)=Y1(NO,J+IGG1-nmin-n5+i55-1)
  3 CONTINUE
  K=16
  CALL GARM(N5,K,Y)
...
  DO 7 J=1,N
    TS(J)=TSS(NO,JC-10+J)
    W0(J)=W00(NO,JC-10+J)
  7 CONTINUE
  DO 8 J=1,KH
    TS(J)=TSC(J+NP)
    W0(J)=W0C(J+NP)
  8 CONTINUE
    CALL DMPP(W0,TS,DV,T0,NO,N,AF0,RAST,W00,TSS,MD,RRR,1)
  C1=MP/SBM(NO)
...
  PR=C1*TEN
  C1=C1*100.
  VAL=PR*S5(NO,I55)*0.1
  GOTO 40
  GOTO 30
  40 WRITE(6,113)OBL,TEN,C1,PR,S5(NO,I55),VAL
    write(datepr,9991) nd,md,IGG1+I55-1 !ng
  9991 format(i2,'.0',i1,',',i4)
  PROGNOZ=PR
  BCC(I55)=PR
..
  30 CONTINUE
    CALL OPRAV (OBL,IGPROG,BCC,NO,YR,IG2,IG1,KC,NMIN,NMAX,ND,MD,NG)

```

```
    READ(5,104)ZAG
2 CONTINUE
```

...

```
    END
```

```
    SUBROUTINE DMPP(W0,TS,DV,T0,NO,N,AF0,RAST,W00,TSS2,MD,RRR,iPrint)
    DIMENSION W0(15),TS(15),DV(15),TSS(150),W00(4,18),
    *TS11(15),BKK(4),BBB(4),TF(4),TR(4),ZZL(4),TSS2(4,18),
    *TOPL(4),TOPS(4),TOPR(4),TOPP(4),TPP(4),FII(4),
    *AF00(4),GS(4),TKS(4),TP11(12),TP22(12),SUMOC(27),RRR(21)
    COMMON /BL3/MP
    INTEGER T0,DV,GI,G2
    REAL DAX1(0:42),DAX2(0:42),DAX3(0:42),DAX4(0:42),DAX5(0:42),
    *DAX6(0:42),DAX7(0:42),DAX8(0:42)
    REAL M,ML,MS,MR,MP,LL,KSIFL,J0,JJ
```

...

```
    * 14*0/
    DROST(TS2,TOPT,CC)=(2.3026*(2./TOPT)*10.**((2.-(2./TOPT)*TS2)*
    *1000.*CC)/(1.+10.**((2.-(2./TOPT)*TS2))**2
    GI=0
    J1=1
    ML=GS(NO)*VL
    MS=GS(NO)*VS
    MR=GS(NO)*VR
    MP=0
    M=ML+MS+MR
    LL=GS(NO)*SL
    TS2=0
    J2=0
    FI=FII(NO)
    BK=BKK(NO)
    BB=BBB(NO)
    ZL=ZZL(NO)
    AF0=AF00(NO)
    DO 300 J=1,N
    G2=0
    NN=DV(J)
    DO 310 I=1,NN
    TS1=TS(J)-5
    IF(TS1.LT.0) TS1=0
    IF(TS(J).LT.0)TS(J)=0
    TS2=TS2+TS1
    TSS(I+J2)=TS2
```

```

310 CONTINUE
  J2=J2+DV(J)
  TS11(J)=TS1
300 CONTINUE
с -----
  sumRRR=0.0 !сумма осадков с сентября по март
    sumR1=0.0 !сумма осадков с сентября по ноябрь
    sumR2=0.0 !сумма осадков с декабря по март
  do 1301 jh=1,21
    if (jh.lt.10) sumR1=sumR1+RRR(jh)
    if (jh.gt.9) sumR2=sumR2+RRR(jh)
1301 sumRRR=sumRRR+RRR(jh)
451 format(18x,"сент-март сент-нояб дек-март")
458 format(" Осадки, мм.:",3f11.1)
459 format(" Осадки, % :",3f11.1)
788 format (i5)
  sumoc=0.0
  sum=0
  do 1302 jh=1,n
    sum=sum+w0(jh)
1302 sumoc(jh)=sum
  RAST=TS2-TKS(NO)
  if(no.eq.1.and.rast.gt.200)bk=10.5
    IF(NO.EQ.4.AND.RAST.GT.120)bk=12
  DO 99 J=1,N
...
  DO 400 I=1,NN
  TS2=TSS(GI+1)
  DELTA=0.017453*(0.473*(T0+GI)-0.196E-2*(T0+GI)**2-0.407E-5*
*(T0+GI)**3-0.616)
  A=SIN(0.017453*FI)*SIN(DELTA)
  B=COS(0.017453*FI)*COS(DELTA)
  TZ=12+3.8197*(1.5708-ATAN(-A/B/SQRT(1-(A/B)**2)))
  TV=24-TZ
  S1=S1+DELTA
  S2=S2+A
  S3=S3+B
  S4=S4+TZ
  S5=S5+TV
  A1=-100.*ALOG(AF0)/(TF(NO)**2)
  AFL=EXP(-A1*((TS2-TF(NO))/10)**2)
  A1=-100.*ALOG(0.5)/(TR(NO)**2)
  ARL=EXP(-A1*((TS2-TR(NO))/10)**2)

```

```

DML=DROST(TS2,TOPL(NO),CL)
DMS=DROST(TS2,TOPL(NO),CS)
DMR=DROST(TS2,TOPL(NO),CR)
R1=TS2-TPP(NO)
IF(R1.LT.0) GOTO 62
DMP=DROST(R1,TOPL(NO)-TPP(NO),CP)
GOTO 63
62 DMP=0
63 S6=S6+AFL
...
400 CONTINUE
...
Q=12.66*8.5**1.31+315*(A+B)**2.1
  TSS3=TSS2(NO,J)
J0=0.5*Q/(TAUD*60)
TP1=TP11(J)
TP2=TP22(J)
WN=W00(NO,J)
TMIN=-4
TMAX=30
KSIFL=1.
IF(TS(J).LT.TP1) GOTO 405
IF(TS(J).GT.TP2) GOTO 406
GOTO 466
405 X=(TS(J)-TMIN)/(TP1-TMIN)
  KSIFL=13.7*SIN(0.0774*X)
  GOTO 466
406 X=1-((TS(J)-TP2)/(TMAX-TP2))
  KSIFL=0.955*SIN(1.5705*X)
466 IF(j.le.8.AND.ts(j).ge.23)KSIFL=0.7
  IF(KSIFL.GT.1) KSIFL=1
  GAMF=W0(J)/WN
    if (no.eq.1) then
  IF(J.EQ.1.OR.J.EQ.2.OR.J.EQ.3)
  *GAMS= aKLI(real(GAMF),DAX1)
  IF(J.GE.4.AND.J.LE.6)
  *GAMS=aKLI(real(GAMF),DAX2)
  IF(J.EQ.7.OR.J.EQ.8)
  *GAMS=aKLI(real(GAMF),DAX1)
  endif
  if (no.ge.2) then
  IF(J.EQ.1.OR.J.EQ.2.OR.J.EQ.3.OR.J.EQ.4)
  *GAMS= aKLI(real(GAMF),DAX3)

```

```

IF(J.GE.5.AND.J.LE.6)
*GAMS=aKLI(real(GAMF),DAX4)
if(j.eq.5.and.ts(4).gt.13.and.ts(5).gt.13)ksifl=1.2
IF(J.EQ.7.OR.J.EQ.8)
*GAMS=aKLI(real(GAMF),DAX4)
endif
if (no.eq.3) then ! Челябинская
IF(J.EQ.1.OR.J.EQ.2.OR.J.EQ.3)
*GAMS= aKLI(real(GAMF),DAX5)
IF(J.GE.4.AND.J.LE.6)
*GAMS=aKLI(real(GAMF),DAX6)
IF(J.EQ.7.OR.J.EQ.8)
*GAMS=aKLI(real(GAMF),DAX6)
if(j.eq.5.and.TS(4).gt.13.and.TS(5).gt.17.)ksifl=1.3
if(j.eq.8.and.TS(6).gt.16.and.TS(7).gt.17.and.TS(8).gt.17.)
*ksifl=1.3
endif
if (no.ge.4) then !Курганская
IF(J.EQ.1.OR.J.EQ.2.OR.J.EQ.3.)
*GAMS= aKLI(real(GAMF),DAX7)
IF(J.GE.4.AND.J.LE.6)
*GAMS=aKLI(real(GAMF),DAX7)
IF(J.EQ.7.OR.J.EQ.8)
*GAMS=aKLI(real(GAMF),DAX8)
if(j.eq.8.and.TS(6).gt.17.and.TS(7).gt.20.and.TS(8).gt.20.)
*ksifl=1.4
endif
...
GAMF= GAMS
455 FORMAT(2X,8F8.2)
JJ=J0/(1.+0.5*LL)
F0L=BK*BB*JJ/(BK+BB*JJ)
FTL=AFL*F0L*KSIFL*GAMF
FL=0.68*FTL*LL*TAUD*0.1
DMM=FL-ARL*(0.015*M+0.28*FL)
R5=2*TOPP(NO)-TPP(NO)
V1=0.3*ML*TS1/(R5-2.*TOPL(NO))
V2=0.3*MS*TS1/(R5-2.*TOPS(NO))
V3=0.3*MR*TS1/(R5-2.*TOPR(NO))
IF(TS2.LT.2*TOPL(NO)) V1=0
IF(TS2.LT.2*TOPS(NO)) V2=0
IF(TS2.LT.2*TOPR(NO)) V3=0
ML=ML+(BL*DMM-V1)*DV(J)

```

```

MS=MS+(BS*DMM-V2)*DV(J)
MR=MR+(BR*DMM-V3)*DV(J)
MP=MP+(BP*DMM+V1+V2+V3)*DV(J)
M=ML+MS+MR+MP
IF((BL*DMM-V1)*DV(J).GE.0) LL=LL+(BL*DMM-V1)*DV(J)/ZL
IF((BL*DMM-V1)*DV(J).LT.0) LL=LL+(BL*DMM-V1)*DV(J)/(ZL*0.3)
IF(LL.LT.0) LL=0.001
J1=J1+1
99 CONTINUE
J1=J1-1
RETURN
END

```

### ***Расчет урожайности зерновых в Уральском регионе (фрагменты)***

С Нумерация областей: 1-Курганская, 2-Пермская, 3-Свердловская,  
с 4-Челябинская

С ДАННЫЕ С 2 ДЕКАДЫ АПРЕЛЯ ПО 2 ДЕКАДУ АВГУСТА  
 DIMENSION N11(4),N22(4),N11V(4),N22V(4),  
 \*SBM(4),TSS(4,13),Y1(7,50),YR(50),STR(39),  
 \*W0C(13),TSC(13),W0(13),TS(13),DV(13),Y(50),t(15), IG1(70)  
 \*,IG2(20), S5(7,20), BCC(50),  
 \*W0Y(4,13),K5(4)

....

```
open (5, file="zerur.dat")
```

```
open (6, file="zerur.res")
```

```
  READ(5,104)ZAG
```

```
READ(5,108)ND,MD,NG, NGf
```

```
  write(6,104)ZAG
```

```
write(6,108)ND,MD,NG, NGf
```

```
N=13          ! Кол-во декад с 2 дек АПРЕЛЯ по 2 дек августа
```

```
KO=4         ! Кол-во областей
```

```
! K=16
```

```
NBeg=11      ! Все данные с 2 дек. апреля
```

```
N5=32 !!!KC
```

```
METHOD="ZERUR "
```

```
WRITE(6,110)
```

```
WRITE(6,111)
```

```
WRITE(6,112)
```

```
WRITE(6,110)
```

```
NMAX=NG
```

```
NMIN=1971
```

```
IGG1=NGf    ! НАЧАЛЬНЫЙ ГОД ПРОГНОЗА
```

```
if (NGf.eq.0) IGG1=NG
```

```

      KC=NMAX-NMIN
      IGPLOG=NMAX-IGG1 ! КОЛ-ВО ЛЕТ ПРОГНОЗА
      DO 2 I=1,1 !4 !6
      READ(5,103)OBL
С  Нумерация областей:1-Курганская,2-Пермская,3-Свердловская,
с  4-Челябинская
      IF (INDEX (OBL, 'Кур').GT.0) NOBL=141
      IF (INDEX (OBL, 'Пер').GT.0) NOBL=138
      IF (INDEX (OBL, 'Све').GT.0) NOBL=139
      IF (INDEX (OBL, 'Чел').GT.0) NOBL=140
      IF (NOBL.EQ.141) NO=1
      IF (NOBL.EQ.138) NO=2
      IF (NOBL.EQ.139) NO=3
      IF (NOBL.EQ.140) NO=4
      kkk=910
      READ(5,106) (IG1(L),L=1,KC) ! ВВОД ЛЕТ
      READ(5,104)ZAG
      READ(5,105)(YR(L),L=1,KC)
      READ(5,104)ZAG
      READ(5,1181) (IG2(L),L=1,IGPLOG+1) ! ВВОД ПЛОЩАДЕЙ
      READ(5,118) (S5(NO,L),L=1,IGPLOG+1)
      DO 1 J=1,KC
      Y1(no,J)=YR(J)
1 CONTINUE
      DO 30 I55=1,1 !IGPLOG+1 ! КОЛ-ВО ЛЕТ ПРОГНОЗА
      READ(5,104) ZAG
      READ(5,104) ZAG
      READ (5,100) (TSC(L),L=1,10)
      READ(5,104) ZAG
      READ (5,100) (W0C(J),J=1,10)
      DO 9 J=1,10
      IF (TSC(J).eq.99.9 .or. W0C(J).eq.99.9) GOTO 30
9 CONTINUE
      DO 3 J=1,n5 !KC
      Y(J)=Y1(NO,J+(IGG1-32-1-1971+I55))
3 CONTINUE
      CALL GARM(N5,K,Y)
      N1C=N11(NO)
      N2C=N22(NO)
      CALL TNUL(N1C,N2C)
      N1V=N11V(NO)
      N2V=N22V(NO)
      call nnd(0,ND-1,MD,ndekP) ! ndekP- номер декады прогноза

```

```

call nnd(0,N1C,N2C,ndekC)    ! ndekC- номер декады сева
call nnd(0,N1V,N2V,ndekV)    ! ndekV- номер декады ув.ботвы
DO 7 J=1,N      ! J=1 - 2-я декада АПРЕЛЯ
TS(J)=TSS(NO,J)
W0(J)=W0Y(NO,J)
7 CONTINUE
J1=ndekC-NBeg+1  ! Декада сева
J2=ndekP-NBeg+1  ! Декада прогноза
J3=ndekV-NBeg+1  ! Декада ув.ботвы
DO 8 J=J1,J2
TS(J)=TSC(J)
W0(J)=W0C(J)
8 CONTINUE
CALL DMPP(W0,TS,DV,T0,NO,RAST,W0Y,TSS,J1,J3,n,MD)
C1=MP/SBM(NO)
...
PR=C1*TEN
C1=C1*100.
VAL=PR*S5(NO,I55)*0.1
GOTO 40
GOTO 30
40 WRITE(6,113)OBL,TEN,C1,PR,S5(NO,I55),VAL
write(datepr,9991) nd,md,IGG1+I55-1 !ng
9991 format(i2,'0',i1,',',i4)
PROGNOZ=PR
BCC(I55)=PR
...
30 CONTINUE
CALL OPRAV (OBL,IGPROG,BCC,NO,YR,IG2,IG1,KC,NMIN,NMAX,ND,MD,NG)
READ(5,104)ZAG
2 CONTINUE
...
END
SUBROUTINE DMPP(W0,TS,DV,T0,NO,RAST,W0Y,TSS2,JN,J3,n,MD)
DIMENSION W0(13),TS(13),DV(13),TSS(200),W0Y(4,13),TSS2(4,13),
*TS11(13),BKK(NO),AFOO(4),AFRO(4),FII(4),TKS(4),
*TP51(13),TP52(13),TP61(13),TP62(13),TP71(13),TP72(13),sumoc(27)
COMMON /BL3/MP
COMMON /BL6/TSS,TS11
INTEGER T0,DV,GI
REAL DAX(0:45),DAX1(0:45),DAX2(0:45),DAX3(0:9),DAX4(0:48),
* DAX5(0:48),DAX6(0:48),DAX7(0:45)
REAL M,ML,MS,MR,MP,LL,KSIFL,J0,JJ

```

...

```
DROST(TS2,TOPT,CC)=(2.3026*(2./TOPT)*10.**(2.-(2./TOPT)*TS2)*  
*1000.*CC)/(1.+10.**(2.-(2./TOPT)*TS2))**2
```

```
GI=0
```

```
J1=1
```

```
ML=375*VL
```

```
MS=375*VS
```

```
MR=375*VR
```

```
MP=0
```

```
M=ML+MS+MR
```

```
LL=375*SL
```

```
FI=FII(NO)
```

```
ZL=ZZL
```

```
AFO=AFOO(NO)
```

```
AFR=AFRO(NO)
```

```
CALL SUMT (TS,DV,JN,J3,TS2)
```

```
TF=0.25*TS2
```

```
TR=0.25*TS2
```

```
TOPL=0.30*TS2
```

```
TOPS=0.35*TS2
```

```
TOPR=0.35*TS2
```

```
TPP=0.50*TS2
```

```
TOPP=0.75*TS2
```

```
sum=0.0
```

```
do 1301 jh=1,n
```

```
sum=sum+w0(jh)
```

```
1301 sumoc(jh)=sum
```

```
100 format(10f8.3)
```

```
IF(NO.EQ.1.) BKK=aKLI(real(TS2),DAX3)
```

```
IF(NO.EQ.2.) BKK=aKLI(real(TS2),DAX4)
```

```
IF(NO.EQ.3.) BKK=aKLI(real(TS2),DAX5)
```

```
IF(NO.EQ.4.) BKK=aKLI(real(TS2),DAX6)
```

```
RAST=TS2-TKS(NO)
```

```
IF((NO.EQ.1).AND.(RAST.LE.-5)) BKK=14.5
```

```
IF((NO.EQ.4).AND.(SUMOC(10).ge.190)) BKK=13.5
```

```
450 FORMAT(2X,3F8.2)
```

```
DO 99 J=JN,J3
```

```
S1=0
```

```
S2=0
```

```
S3=0
```

```
S4=0
```

```
S5=0
```

```
S6=0
```

```

S7=0
S8=0
S9=0
S10=0
S11=0
TS1=TS11(J)
NN=DV(J)
DO 400 I=1,NN
TS2=TSS(GI+1)
DELTA=0.017453*(0.473*(T0+GI)-0.196E-2*(T0+GI)**2-0.407E-5*
*(T0+GI)**3-0.616)
A=SIN(0.017453*FI)*SIN(DELTA)
B=COS(0.017453*FI)*COS(DELTA)
TZ=12+3.8197*(1.5708-ATAN(-A/B/SQRT(1-(A/B)**2)))
TV=24-TZ
S1=S1+DELTA
S2=S2+A
S3=S3+B
S4=S4+TZ
S5=S5+TV
A1=-100.*ALOG(AFO)/(TF**2)
AFL=EXP(-A1*((TS2-TF)/10)**2)
A1=-100.*ALOG(AFR)/(TR**2)
ARL=EXP(-A1*((TS2-TR)/10)**2)
DML=DROST(TS2,TOPL,CL)
DMS=DROST(TS2,TOPS,CS)
DMR=DROST(TS2,TOPR,CR)
R1=TS2-TPP
IF(R1.LT.0) GOTO 62
DMP=DROST(R1,TOPP-TPP,CP)
GOTO 63
62 DMP=0
63 S6=S6+AFL
S7=S7+ARL
S8=S8+DML
S9=S9+DMS
S10=S10+DMR
S11=S11+DMP
GI=GI+1
400 CONTINUE
...
Q=12.66*9.5**1.31+315*(A+B)**2.1
J0=0.5*Q/(TAUD*60)

```

```

IF(MD.EQ.5) TP1=TP51(J)
IF(MD.EQ.5) TP2=TP52(J)
IF(MD.EQ.6) TP1=TP61(J)
IF(MD.EQ.6) TP2=TP62(J)
    IF(MD.EQ.7) TP1=TP71(J)
IF(MD.EQ.7) TP2=TP72(J)
TMIN=-4.
TMAX=28.
KSIFL=1.
IF(TS(J).LT.TP1) GOTO 405
IF(TS(J).GT.TP2) GOTO 406
GOTO 466
405 X=(TS(J)-TMIN)/(TP1-TMIN)
    KSIFL=13.7*SIN(0.0774*X)
    GOTO 466
406 X=1-((TS(J)-TP2)/(TMAX-TP2))
    KSIFL=0.955*SIN(1.5705*X)
466 IF(KSIFL.LT.0.85) KSIFL=0.95
    IF(KSIFL.GT.1) KSIFL=1
    TSS3=TSS2(NO,J)
    WN=W0Y(NO,J)
    GAMF=W0(J)/WN
    GAMF1=GAMF
    IF (NO.EQ.1) GAMS=aKLI(real(GAMF),DAX)
    IF (NO.EQ.2) GAMS=aKLI(real(GAMF),DAX1)
    IF (NO.EQ.3) GAMS=aKLI(real(GAMF),DAX7)
    IF (NO.EQ.4) GAMS=aKLI(real(GAMF),DAX2)
    GAMF=GAMS
...
if (NO.EQ.1) then
if((j.eq.6).and.(G5.GE.1.7).AND.(G6.GE.2.0)) GAMF=1.70
    if((j.eq.8).and.(G7.GE.1.3).AND.(G8.GE.1.3)) GAMF=1.4
    if((j.eq.9).and.(G6.LE.0.5).AND.(G7.LE.0.5).and.(G8.LE.0.5).
*   AND.(G9.LE.0.5)) GAMF=0.7
if((j.eq.1).and.(G1.GE.1.3).AND.(TS(1).GE.8.0)) KSIFL=1.2
endif
if (NO.EQ.2) then
    if ((J.EQ.1).AND.(G1.GT.2.7)) GAMF=1.2
        if ((J.EQ.7).AND.(G6.GT.1.6).AND.(G7.GT.1.5)) GAMF=1.3
            if ((J.EQ.4).AND.(G2.GT.1.3).AND.(G3.GT.1.1).
*   AND.(G4.LT.0.1)) GAMF=1.0
            if ((Md.EQ.6).AND.(J.EQ.2).AND.(G1.GT.1.5).AND.(G2.GT.1.3))
*   GAMF=1.3

```

```

endif
if (NO.EQ.3) then
if ((J.EQ.1).AND.(G1.GE.2.0).AND.(TS(1).GE.6.0)) KSIFL=1.2
if ((J.EQ.3).AND.(G1.GE.1.2).AND.(G2.GE.2.2).AND.(G3.GE.1.2))
*   GAMF=1.2
    if ((J.EQ.2).AND.(TS(1).GE.7.0).AND.(TS(2).GE.9.0)) KSIFL=1.2
if ((J.EQ.7).AND.(G5.GE.1.3).AND.(G6.GE.2.0).AND.(G7.GE.1.3))
*   GAMF=1.3
if ((J.EQ.3).AND.(G2.GE.3.0).AND.(G3.GE.2.0)) GAMF=1.4
if ((J.EQ.6).AND.(G6.GE.1.5).AND.(TS(6).GE.16.5)) GAMF=1.3
if ((J.EQ.1).AND.(G1.GE.1.4).AND.(TS(1).GE.8.0)) KSIFL=1.2
endif
if (NO.EQ.4) then
    if ((J.EQ.7).AND.(G5.LE.0.6).AND.(G6.LE.0.6).
*   AND.(G7.LE.0.2)) GAMF=0.6
        if ((J.EQ.7).AND.(G7.GE.1.6).AND.(TS(7).GE.17.)) KSIFL=1.2
if ((J.EQ.1).AND.(G1.GE.2.5)) GAMF=1.3
    if ((J.EQ.1).AND.(G1.GE.1.8).AND.(TS(1).GE.9.)) KSIFL=1.2
    endif
...
99 CONTINUE
J1=J1-1
RETURN
END

```