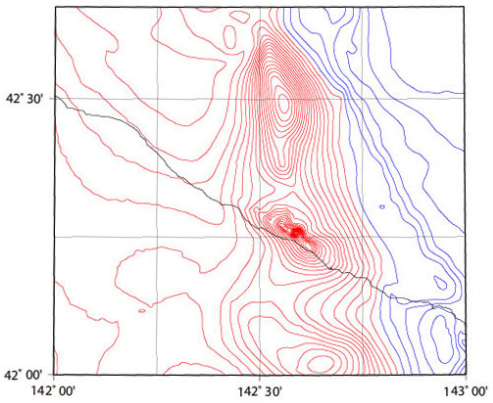
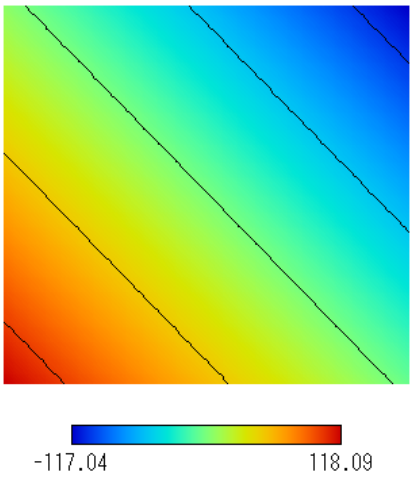
トレンドを計算するプログラム



この磁気異常データから一次傾向面を計算し、残差をもとめる。

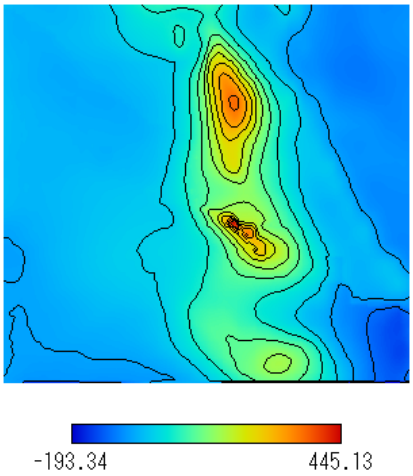
入力データに NoData がある場合に対応していないので、データがある範囲のみ。

```
163   152
2          2          582.5     4649.5    64.6
2          3          582.5     4650      65
2          4          582.5     4650.5    65.5
```



trend.txt

```
163  152
                1          1          118.086
                1          2          117.345
```



urakawa500_res.txt

```
163 152
          1          1    -53.4857
          1          2    -52.3453
          1          3    -51.1048
```

FORTRAN プログラム

```
c
c          1st order trend
c                                                    arranged by RIE
c                                                    trend.f on uts
      common /blk/ ix,iy
      dimension f(350,350), a(10,10)
c
      open(10,file='urakawa.500.txt',status='old')
      open(20,file='urakawa500_trd.txt')
c
      read(10,*) ix,iy
      do 20 i=1,ix
       do 20 j=1,iy
        read(10,*) ii,jj,xx,yy,dat
        f(i,j)=dat
   20 continue
      close(10)
c
```

```
      call trend(a,f)
      call gaja(a,3)
      call dtrnd(a,f)
c
      write(20,*) ix,iy
      do 10 i=1, ix
      do 10 j=1, iy
       write(20,*) i,j,f(i,j)
   10 continue
c
      close(20)
      stop
      end
c*****************************
      subroutine trend(a,t1)
c*****************************
      common /blk/ ix,iy
      dimension t1(350,350)
      dimension a(10,10)
      kx=0
      ky=0
      kxx=0
      kxy=0
      kyy=0
      t=0.
      tx=0.
      ty=0.
      fnn=float(ix*iy)
      do 10 i=1,ix
      do 10 j=1,iy
       fi=float(i)
       ii=i*i
       kx=i+kx
       kxx=ii+kxx
       fj=float(j)
       jj=j*j
```

```
        ky=j+ky
        kyy=jj+kyy
        kxy=i*j+kxy
        tij=t1(i,j)
        t=t+tij
        tx=fi*tij+tx
        ty=fj*tij+ty
   10 continue
      a(1,2)=float(kxx)/fnn
      a(1,3)=float(kxy)/fnn
      a(1,1)=float(kx)/fnn
      a(1,4)=tx/fnn
      a(2,2)=float(kxy)/fnn
      a(2,3)=float(kyy)/fnn
      a(2,1)=float(ky)/fnn
      a(2,4)=ty/fnn
      a(3,2)=float(kx)/fnn
      a(3,3)=float(ky)/fnn
      a(3,1)=1.0
      a(3,4)=t/fnn
      return
      end
c**************************
      subroutine dtrnd(a,t1)
c**************************
      common /blk/ ix,iy
      dimension t1(350,350)
      dimension a(10,10)
      aa=a(2,4)
      bb=a(3,4)
      cc=a(1,4)
c------------------------------
      open(3,file='trend.txt')
      write(3,*) ix, iy
c------------------------------
      do 10 i=1,ix
```

```
        fi=float(i)
        do 10 j=1,iy
         fj=float(j)
         t=aa*fi+bb*fj+cc
         t1(i,j)=t1(i,j)-t
c-----------------------------
         write(3,*) i,j,t
c-----------------------------
   10 continue
c-----------------------------
      close(3)
c-----------------------------
      return
      end
c*************************
      subroutine gaja(c,is)
c*************************
      dimension c(10,10)
      real c,w
      ise=is+1
      do 10 k=1,is
       w=c(k,k)
       k1=k+1
       do 20 j=k1,ise
        c(k,j)=c(k,j)/w
   20  continue
       do 30 i=1,is
        if(i.eq.k) go to 30
        w=c(i,k)
        do 32 j=k1,ise
         c(i,j)=c(i,j)-w*c(k,j)
   32   continue
   30  continue
   10 continue
      return
      end
```