Subject: Legenders polynomial
Posted by Baro on Mon, 11 Jun 2012 19:06:10 GMT
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Dear All,

I was trying to compute the legender function. I wrote the code as shown below. But it is not working right. could you help. Thank you in advance

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```
PRO legenders_function,theta,lmax

;Give the IDL compiler information that changes some of the default rules
      COMPILE_OPT idl2, HIDDEN

   ; Error handling.
;                CATCH, theError
;               IF theError NE 0 THEN BEGIN
;                  Catch, /CANCEL
;                  void = ERROR_MESSAGE()
;                  RETURN
;               ENDIF

   ;declare global variables
        COMMON MYGLOBAL,alm,blm
   ;set maximum degree,i.e lmax
          lmax = 60
   ;initialization legenders function factors
           m  = fltarr(lmax+1)
           l  = fltarr(lmax+1)
            X = replicate(0.0,lmax+1, lmax+1)
          alm = replicate(0.0,lmax+1, lmax+1)
          blm = replicate(0.0,lmax+1, lmax+1)
          alm[2,2] = sqrt(3)
   ;compute the legenders function factors
      IF size(alm[*,0],/dimensions)LT lmax+1 THEN BEGIN
         FOR l=2,lmax-1 DO BEGIN
               alm[l+1,l+1] = sqrt((2.0*l+1.0)/(2.0*l))
           ENDFOR
            FOR m=0,lmax-1 DO BEGIN
            FOR l=m+1,lmax-1 DO BEGIN
               X=(2.0*l+1.0)/((l+m)*(l-m))
               alm = sqrt(X*(2.0*l-1.0))
               blm = sqrt(X*(l-m-1.0)*(l+m-1.0)/(2.0*l-3.0))
            ENDFOR
         ENDFOR
      ENDIF
```

```
   ; set the values of theta in radian
        cosTheta = cos(3)
        sinTheta = sin(3)
    ;initialization of legenders function
        Plm = replicate(0.0,lmax+1, lmax+1)
        Plm[1,1] = 1.0
   ;compute the legenders function values
            FOR l=0,lmax-1 DO BEGIN
              Plm[l+1,l+1] = alm[l+1,l+1]*sinTheta*Plm[l,l]
            ENDFOR

            FOR m=0,lmax-1 DO BEGIN
               Plm[m+2,m+1] = alm[m+2,m+1]*cosTheta*Plm[m+1,m+1]
            ENDFOR

            FOR m=0,lmax-1 DO BEGIN
                 FOR l=m+2,lmax DO BEGIN
                   Plm[l+1,m+1] = alm[l+1,m+1]*cosTheta*Plm[l,m+1]-blm[l+1,m+1]*Plm[l-1,m+1]
                 ENDFOR
            ENDFOR
       print,'program completed'
END

--http://compgroups.net/comp.lang.idl-pvwave/
```