Subject: Avoiding For Loops
Posted by sudipta on Mon, 01 Aug 2005 19:15:58 GMT
View Forum Message <> Reply to Message

Hello Everybody,
My IDL problem is simple but is very crucial. I have a small program that calculates the RMSE difference between each pixel spectral signature for a landsat scene and corresponding spectral signatures from a Look up Table database that cam e from experiments. In order to do the RMSE calculations I am having to run three for loops as the variable that has all the database spectral signatures is a 4 dimensional variable where the last dimension has the 6 simulated values for the 6 bands of landsat. So the portion for RMSE calculation in my program looks like the following:

```
 for i = 0,9 do begin  ;number of AI
      for j = 0, 14013 do begin ;number of spectral combinations
           for k = 0, 9 do begin ;number of fractions
              tdata = reform(data(i,j,k,*),numbands,1)
              rms(i,j,k) = total((tdata - lfdata)^2)
           end
     end
 end
```

where 'data' is the 4 dimensional variable containing all possible database signature combinations, lfdata has the landsat reflectance from each pixel. I have a landsat 6 band file in BIP format so I do a 'While ~eof(file)' loop and read in each 6 band spectral profile for each pixel and compute its RMS with all posisble database spectral combinations with the aim being to choose the databse signature that has the closest match.
But the first three dimensins of the database are respectively 10,14014 and 10 so giving a total of 1410400 combinations for each pixel. This is slowing things down terribly. So i was wondering if there was a way to avoid the for loops and do the RMS computation in one single step?
Please let me know as any feedback from you will be welcome.
Thanks
Sudipta