
Subject: Re: matching fields in ascii or text files.

Posted by [Pavel A. Romashkin](#) on Fri, 03 Aug 2001 17:04:17 GMT

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Are you attempting this in IDL? Or is it a general data handling question? It seems to me that TXT file and ASCII is the same kind of file. To compare the columns by scrolling them in a window, Excel will do.

Cheers,

Pavel

Patrick McEnaney wrote:

>

> Folks, suggestions needed for going about the following problem:

>

> I have columnar oceanographic data in two different data files. One is

> a txt file, the other ascii. I want to compare depth values in a

> column from one file to depth values in a column from a second file,

> then write all values associated with a specific depth in other

> columns such as temperature, conductivity, nutrients, etc, to another

> file. Should I attempt some sort of boolean expression to search

> through the two files to match values or is there a more efficient

> method that someone can suggest?

>

> Thanks,

>

> Patrick

Subject: Re: matching fields in ascii or text files.

Posted by [patrick](#) on Fri, 03 Aug 2001 21:59:33 GMT

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"Pavel A. Romashkin" <pavel.romashkin@noaa.gov> wrote in message news:<3B6AD991.5669DE2B@noaa.gov>...

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Greetings Pavel-

I'm writing an idl gui script to cycle through fairly long files of data that are collected from a ctd and compare them with chlorophyll measurements from insitu sampling. I want to select the data from a specific depth for chlorophyll and and write all values for that depth in another file. Just putting the data into excel files would be very cumbersome because the data are collected over a month long

cruise and there are alot of measurements. Ultimately I'll use the script whenever I need to compare fields from cruise data. Can you suggest a way to construct such a matching routine in idl?

Cheers,

Patrick

Subject: Re: matching fields in ascii or text files.
Posted by [Craig Markwardt](#) on Fri, 03 Aug 2001 22:25:02 GMT
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patrick@es.ucsc.edu (Patrick McEnaney) writes:

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>
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> columns such as temperature, conductivity, nutrients, etc, to another
> file. Should I attempt some sort of boolean expression to search
> through the two files to match values or is there a more efficient
> method that someone can suggest?

Hi Patrick--

I think what you are trying to do is match up the rows of two files based on a shared column. If you really need to match them exactly, then perhaps the best route is to SORT both arrays by depth, and then step through the lists in tandem.

```
depth1 = ...  
depth2 = ...  
ds1 = sort(depth1) & ds2 = sort(depth2)  
j = 0L  
for i = 0, n_elements(ds1)-1 do begin ;; Step through list 1  
    while depth2(ds2(j)) LT depth1(ds1(i)) do j = j + 1 ;; Find in list 2  
    ; ... process  
endfor
```

You don't say whether you want to match them exactly however. Another really good solution is often spline interpolation. The is especially useful when you have two files sampled on two different time grids (or depth grids in your case). Then you would do,

```
y2 = spl_interp(depth1, y1, spl_init(depth1, y1), depth2)
```

which interpolates the values of Y1, measured on the DEPTH1 grid, onto the DEPTH2 grid. Whew!

Craig

--

Craig B. Markwardt, Ph.D. EMAIL: craigmnet@cow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response

Subject: Re: matching fields in ascii or text files.
Posted by [Paul van Delst](#) on Fri, 03 Aug 2001 22:35:27 GMT
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Patrick McEnaney wrote:

>
> "Pavel A. Romashkin" <pavel.romashkin@noaa.gov> wrote in message
news:<3B6AD991.5669DE2B@noaa.gov>...
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> script whenever I need to compare fields from cruise data. Can you
> suggest a way to construct such a matching routine in idl?

The first question that came to my mind (apart from "aren't TXT and ASCII the same thing?" :o) was: what do you mean by compare? Do you have a depth tolerance? e.g. given a depth value from one file is +/- 10m from another file considered the "same" depth?

Also when you said:

"I want to select the data from a specific depth for chlorophyll and and write all values

for that depth in another file."

did you mean:

"I want to select the data from a specific depth for chlorophyll and write all **the ctd** values for that depth in another file."

??

My first cut at something like this would be to pick the dataset with the least number of depth values, say the chlorophyll stuff - you can loop through those depths. Then you can use where to find the corresponding depths for the ctd data, like:

```
IDL> ctd_depth = findgen(10000)/100. & chlorophyll_depth = 20.0
IDL> help, ctd_depth, chlorophyll_depth
CTD_DEPTH      FLOAT      = Array[10000]
CHLOROPHYLL_DEPTH
      FLOAT      =      20.0000
```

```
IDL> depth_tolerance=0.1 ; metres, for example
IDL> loc = where( abs(ctd_depth-chlorophyll_depth) lt depth_tolerance, count )
```

and loc should give those ctd_depths that are within your tolerance for matching chlorophyll depth.

```
IDL> print, ctd_depth[loc]
  19.9100   19.9200   19.9300   19.9400   19.9500
  19.9600   19.9700   19.9800   19.9900   20.0000
  20.0100   20.0200   20.0300   20.0400   20.0500
  20.0600   20.0700   20.0800   20.0900
```

and then write all the data associated with those ctd depths (using loc) to another file.

Is this the sort of thing you mean?? If so, why would you need a gui?

paulv

p.s. If you have to read in simple columnar ASCII data files (that just contain numbers), you might want to have a look at DDREAD.PRO - it's a piece of IDL code (written by a feller called Fred Knight) that I find indispensable for simply reading in column ASCII numbers.

--

Paul van Delst A little learning is a dangerous thing;
CIMSS @ NOAA/NCEP Drink deep, or taste not the Pierian spring;
Ph: (301)763-8000 x7274 There shallow draughts intoxicate the brain,
Fax:(301)763-8545 And drinking largely sobers us again.
 Alexander Pope.

Subject: Re: matching fields in ascii or text files.
Posted by [Craig Markwardt](#) on Sat, 04 Aug 2001 00:36:37 GMT
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patrick@es.ucsc.edu (Patrick McEnaney) writes:

> I'm writing an idl gui script to cycle through fairly long files of
> data that are collected from a ctd and compare them with chlorophyll
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> script whenever I need to compare fields from cruise data. Can you
> suggest a way to construct such a matching routine in idl?

The solution is even easier in that case.

```
wh = where(depth_list EQ depth)
```

Now WH are the indices of depths in DEPTH_LIST which have the same
depth as DEPTH. Wow, I hope that was intelligible.

The problem with this approach is that if you want to select out many
many DEPTHS in a loop, you will start to slow down because you are
essentially doing an N^2 operation (ie, searching the entire
DEPTH_LIST every time). In that case you may care to revert to
something else.

Craig

--

Craig B. Markwardt, Ph.D. EMAIL: craigmnet@cow.physics.wisc.edu
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