NAME

fixdepths, showdepths − interpolate missing depths for isopotential mapping

SYNOPSIS

fixdepths datafile depthfile

showdepths datafile

DESCRIPTION

Fixdepths converts a file of intermediate results, produced by *isoprep*(1), into a complete measurement matrix, as required by *isopot*(1). It fits a cubic interpolating spline through each row (each track) in the intermediate results, then interpolates values in each row at a given, fixed set of depths. The final measurement matrix is sent to the standard output, which you should redirect to a file.

The first argument, *datafile*, is the name of this file of intermediate results. When *isoprep* detects an inconsistency in the depths where measurements are taken in the various tracks, it cannot directly produce the measurement matrix for *isopot*. To do this requires the same depths for all tracks. If this problem cannot be avoided by other means, you can save the intermediate values, then pass these on to *fixdepths*. This file consists of several rows of several pairs of numbers. One row exists for each track (each run file). In each of these rows, there is a single number (the track position or track index), followed by a pair of numbers for each depth in that track. The first number in each pair is the depth; the second number is the voltage measurement at that depth (usually in mV).

The second argument, *depthfile*, is the name of a file containing the set of depths for which measurements are to be interpolated. This is an ASCII text file containing real numbers separated by white space (blanks, tabs, or newlines). You can produce this file using a text editor. Enter all of the depths at which you want interpolated measurements. For accuracy in the generated output, these depths should be as close as possible to the depths given in the first file.

It is valid to include depths, in the second file, which are outside the range of depths given in the first file; *fixdepths* will simply extrapolate values at these depths, rather than interpolating. This is not advisable, however, since the cubic curves used can yield wildly unpredictable (i.e. inaccurate) values beyond the end points.

Showdepths reads a file of intermediate results, produced by *isoprep*(1), and lists the depths that had been calculated for each row (each track). The argument, *datafile*, is the name of this file of intermediate results. The output can be saved and edited to prepare the *depthfile* required by *fixdepths*: just delete all but the one line that has all the depths you require, and delete the track number and colon from the start of this line.

SEE ALSO

isoprep(1), isopot(1)

BUGS

Remember that this interpolation results in a loss of accuracy. Since *isopot* already performs interpolation of its own, the error is compounded. If this extra step can be avoided, it should be. For example, if only one row in the intermediate results seems to be off, and the depths in all the other rows match each other, then it may be better to simply omit the offending row.