

Technical:

These calculations are my interpretations of the text and equations in "Numerical Recipes" by W.H. Press, B.P. Flannery, S.A. Teukolsky (?) and W.T. Vetterling. Cambridge. The maximum number of digits per number is 63 as the list is stored as str63 variables. However, the calculations are done with double reals and so the effective number of digits per number is much less than this. The programme (hopefully) shouldn't terminate but calculations that exceed the maximum allowable number will return an error message of the type NAN(004) or some-such.

Sums:

Only points that contain an x and a y component are considered in calculations. This allows for gaps in the data to be processed properly. This means that sums for columns are only done for points with both an x and a y value. Furthermore, I haven't given the weighted sums as these generally confuse people when the sum looks very wrong (which for a weighted sum it is not!).

Weighted Data:

Weighted data is calculated by multiplying the results by a multiplication factor, $\sqrt{(\text{abs}(\text{chi}^2) / (N - 2))}$. For 2 (or less!) data points, the multiplication factor is set by $\sqrt{((\text{chi}^2) / N)}$, where N is the number of points. If this is an incorrect procedure please let me know. I'd be grateful.

Unweighted Data:

The multiplication factor is set to 1.

Some Error Messages:

The Apple SANE routines will return an error message for calculations that have stuffed up somewhere. This is generally due to numbers being too big or a number has become zero and subsequently been used in a division calculation. An example of an error message is NAN(004). From the error codes below this signifies that a number became too big for this TYPE of data and so an Overflow error occurred in a calculation.

- Invalid = 1;
- Underflow = 2;
- Overflow = 4;
- DivByZero = 8;
- Inexact = 16;

Please let me know of any data that gives incorrect results. Preferably by e-mail.