t_1: the one-way first arrival time at the deeper of the chosen geophone positions can be obtained from the computation sheet (corrected time, t_c, at relevant depth). Alternatively, if the computation sheet is not available, the equivalent two-way time can be measured from the deconvolved upgoing wavefield display (time at time-depth curve on relevant trace) and halved; this method is, of course, less accurate.

t_2: the one-way first arrival time at the shallower of the chosen geophone positions.

t_3: the time of the arrival of the reflection from the dipping horizon in question at the deeper of the chosen geophone positions. This can be obtained from the deconvolved upgoing wavefield by measuring the two-way time to the reflection being examined, on the relevant trace, and subtracting the one-way first arrival time at the same geophone (i.e. t_1).

Similarly,

t_4: can be obtained from the deconvolved upgoing wavefield by the same process as t_3, but using the shallower geophone trace.

By substituting the values for these variables in the equations above, the angle of dip α, can be calculated. It is suggested that dip be calculated for a number of geophone pairs to provide an indication of the scatter on the dip estimate.

If the beds are not plane-dipping, then shorter segments of the reflector have to be used to determine the dip at any point, with an increased likelihood of error. Alternatively, the Δt can be smoothed by hand to give an "average" dip estimate. Note that the azimuth of dip cannot be calculated from this data.

Calculation of the offset of the termination of dipping reflectors

If the dipping reflection terminates within the data, it is possible to calculate the offset of the termination, hence inferring the offset of a possible fault or "turn over" of the bed. As before, the calculation provides a reasonably accurate assessment of the size of the offset but no indication as to the azimuth. The assumptions made are the same as for the calculation of the angle of dip, and hence the same limitations will apply. If one considers figure 2, it can be quite easily (if tediously) shown that

$$RP = \frac{(r-g)\,r\,\sin(2\alpha)}{(2r-g)\,\cos\alpha}$$