5.1.2b ***Determination of Weight Percentages of Minerals***

The Theory

The height of the strongest peak of a mineral is directly proportional to its amount in the sample. To some extent the peak's height can be used to determine the relative abundance of the said mineral in different samples.

To determine the percentages of dolomite, the X-ray intensity of crystal face (104) of the mineral with d-spacing = 2.89Å was compared to the x-ray intensity from a pure dolomite (100% dolomite standard). For calcite, the crystal face used is also (104), but with the *d-spacing* of 3.04Å. The comparison is made to a pure calcite (100% calcite standard).

The calculation, taking dolomite as an example, is as follows:

$$\%\ \text{of dolomite}_{sample} = \frac{\text{X-ray intensity of face (104)}_{sample}}{\text{X-ray intensity of face (104)}_{standard}}\ \text{X \% of dolomite}_{standard}$$

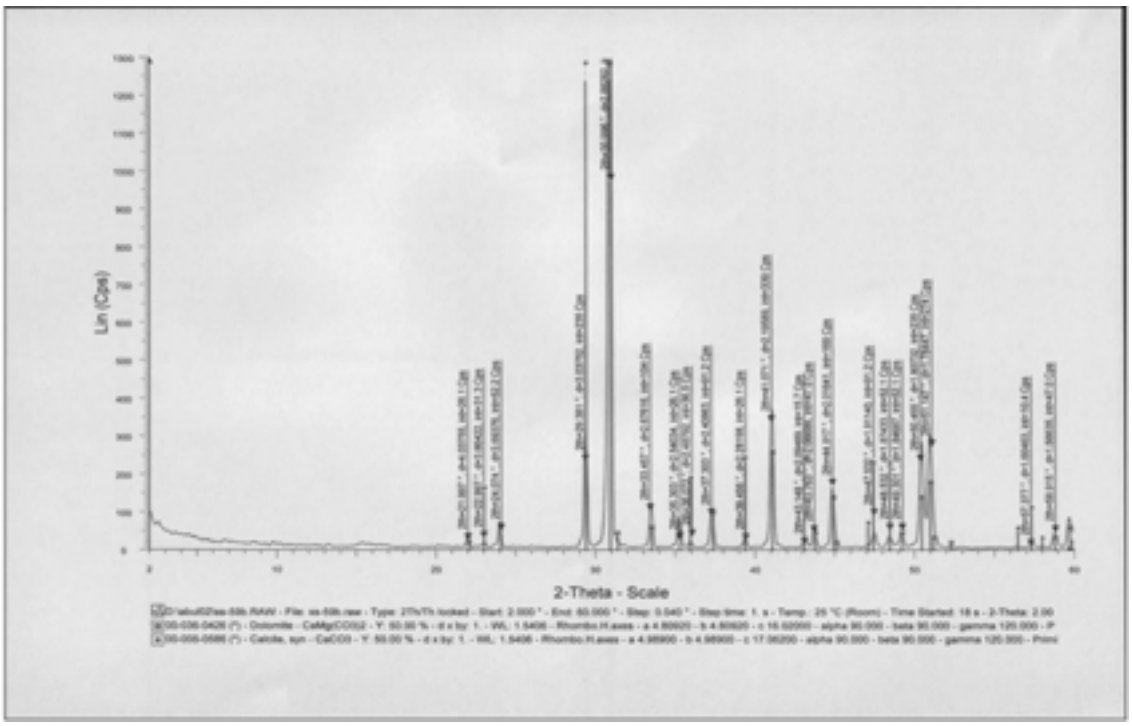

Fig. 45: X-ray diffraction pattern of sample No 59B. (surface of the South Hill)

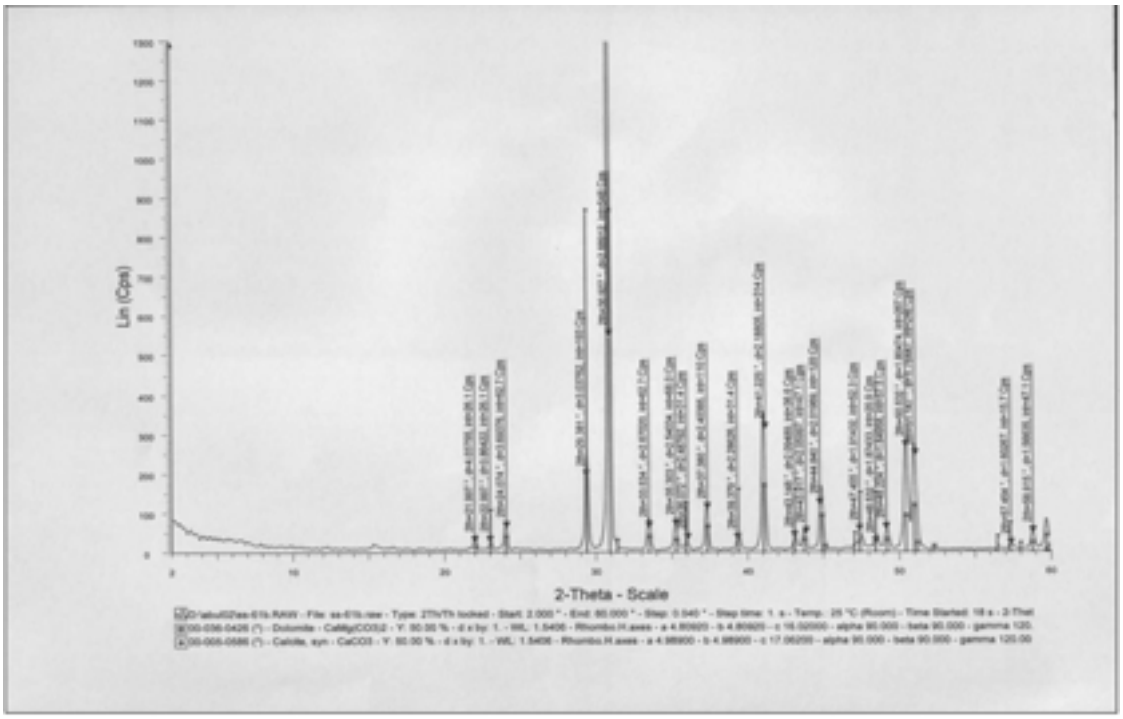

Fig. 46: X-ray diffraction pattern of sample No 61B (surface of the South Hill).

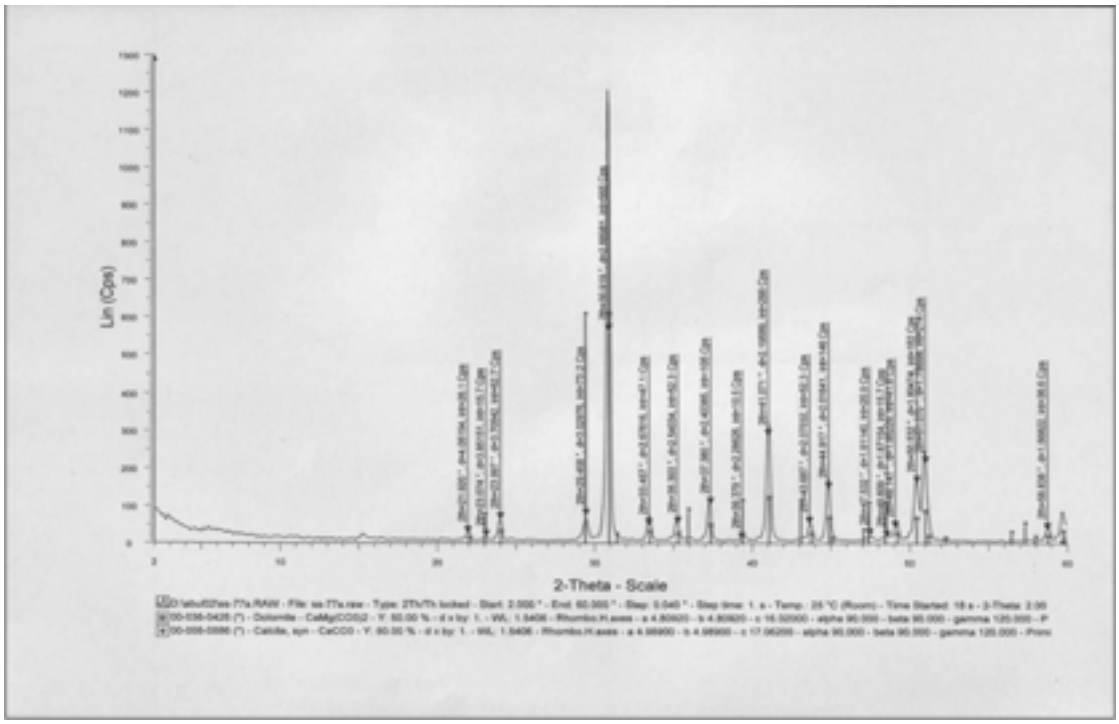

Fig. 47: X-ray diffraction pattern of sample No 77A (surface of the South Hill).

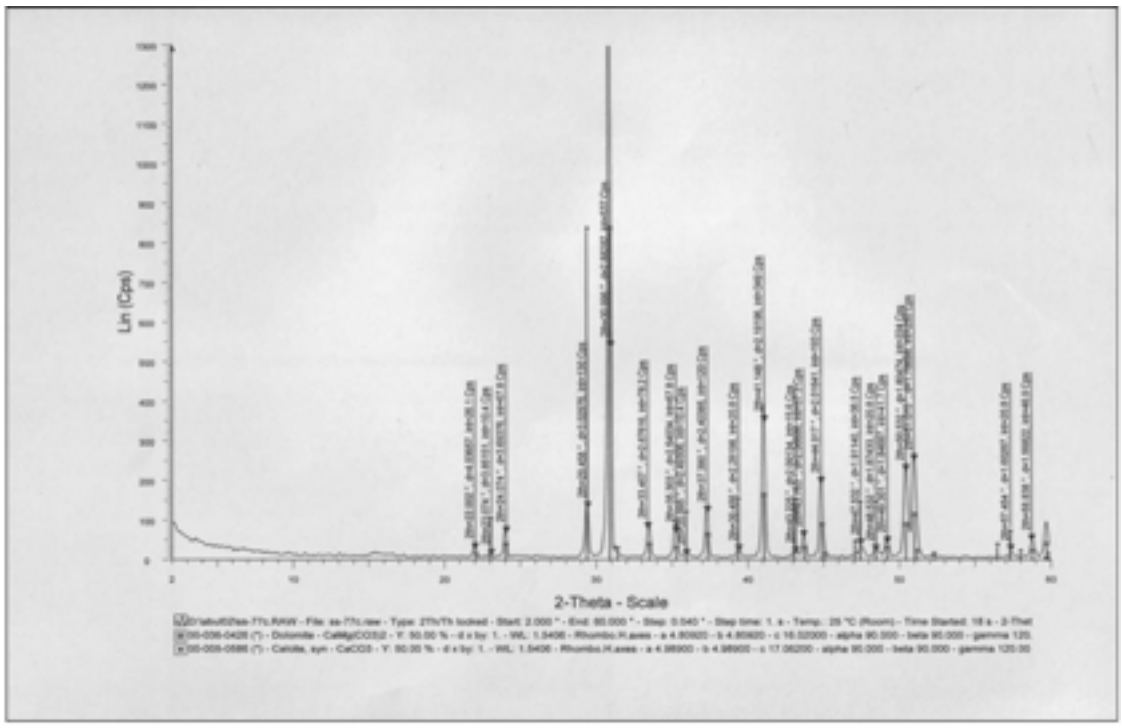

Fig. 48: X-ray diffraction pattern of sample No 77C (surface of the South Hill).

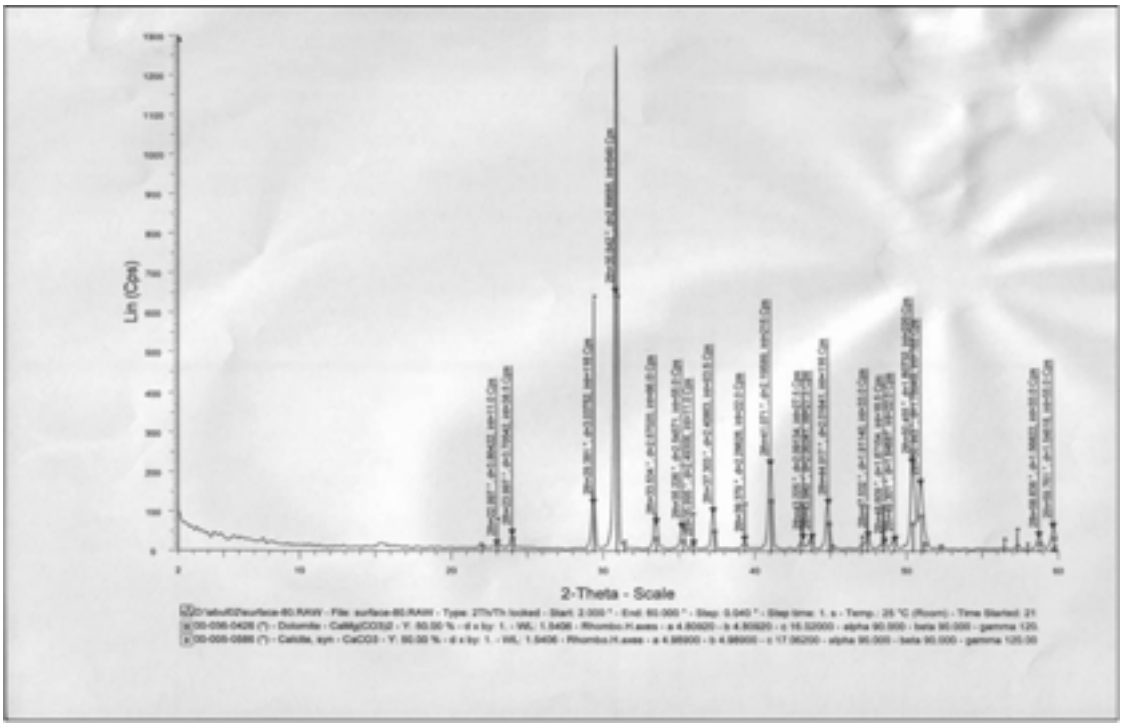

Fig. 49: X-ray diffraction pattern of sample No 80 (surface of the South Hill).

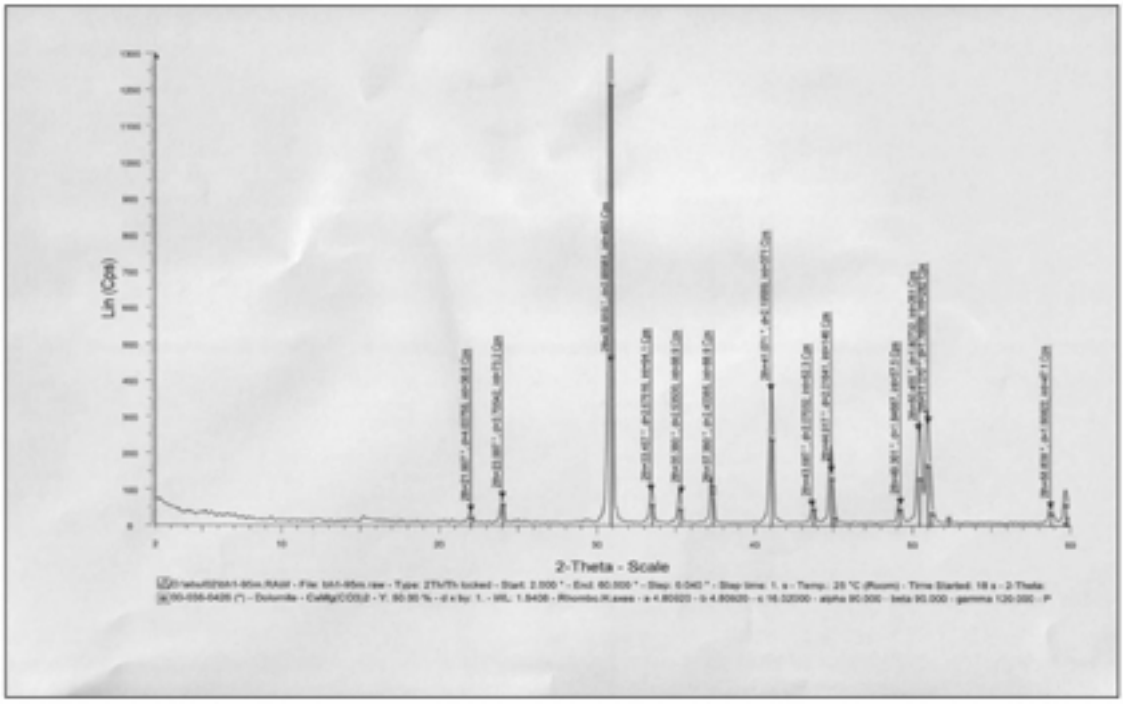

Fig. 50: X-ray diffraction pattern of sample No BH1 9.5 m depth (South Hill)

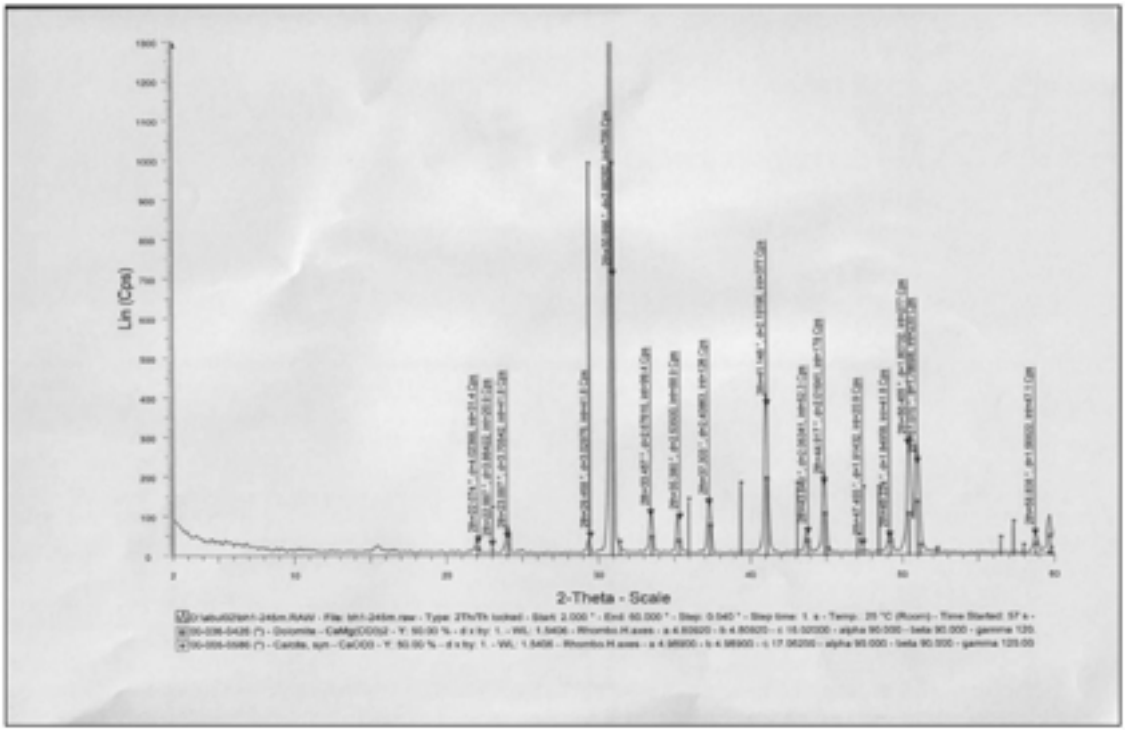

Fig. 51: X-ray diffraction pattern of sample No BH1 24.5 m depth (South Hill)

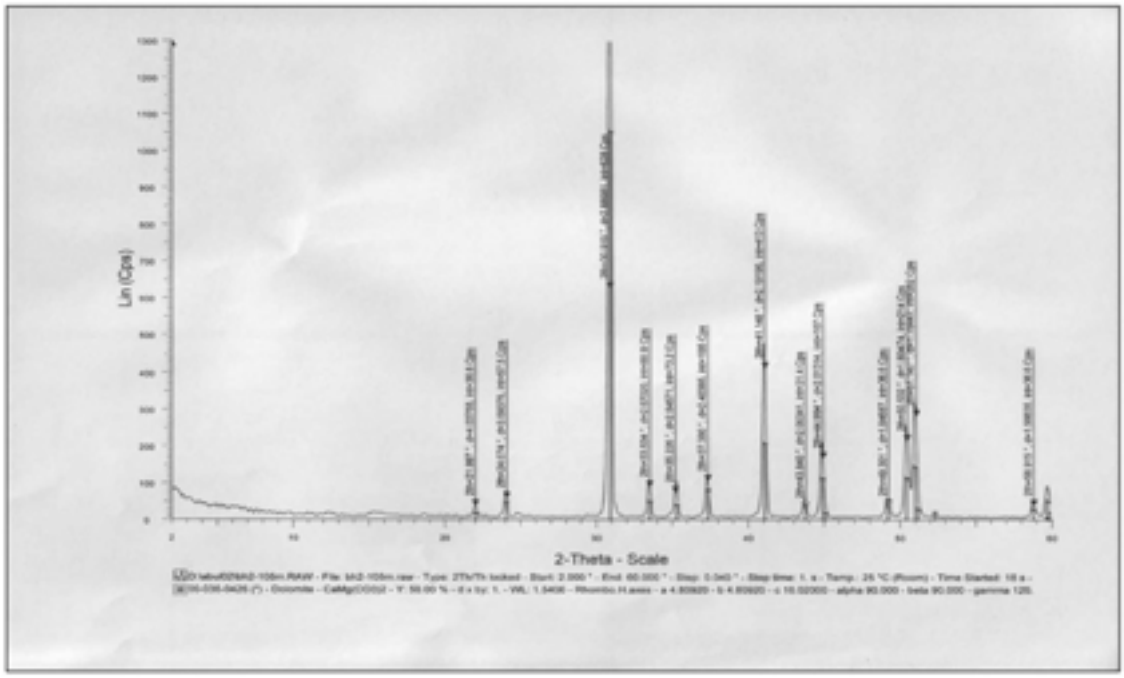

Fig. 52: X-ray diffraction pattern of sample No BH2 10.5 m depth (South Hill)

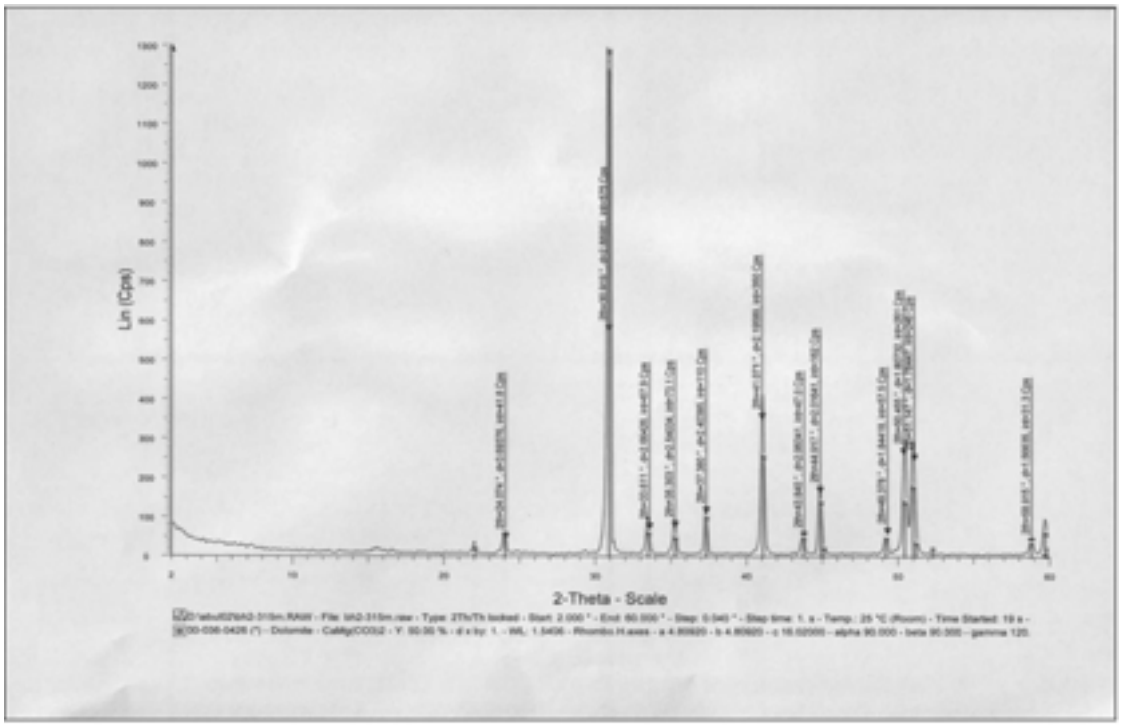

Fig. 53: X-ray diffraction pattern of sample No BH2 31.5 m depth (South Hill)

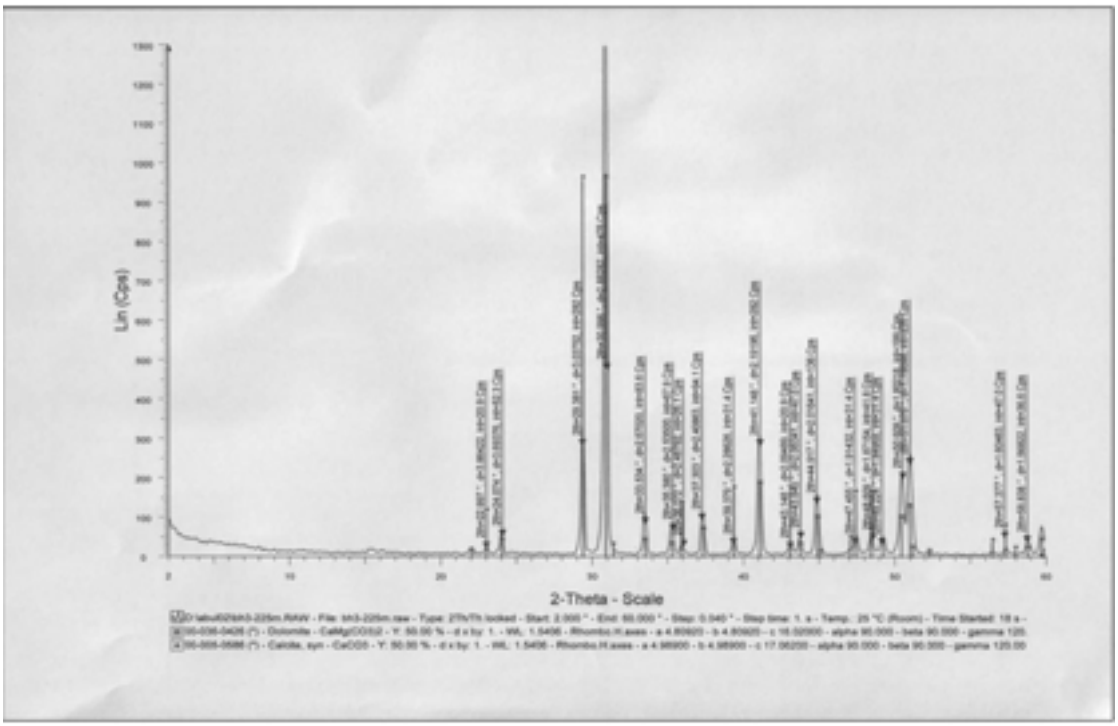

Fig. 54: X-ray diffraction pattern of sample No BH3 22.5 m depth (South Hill).

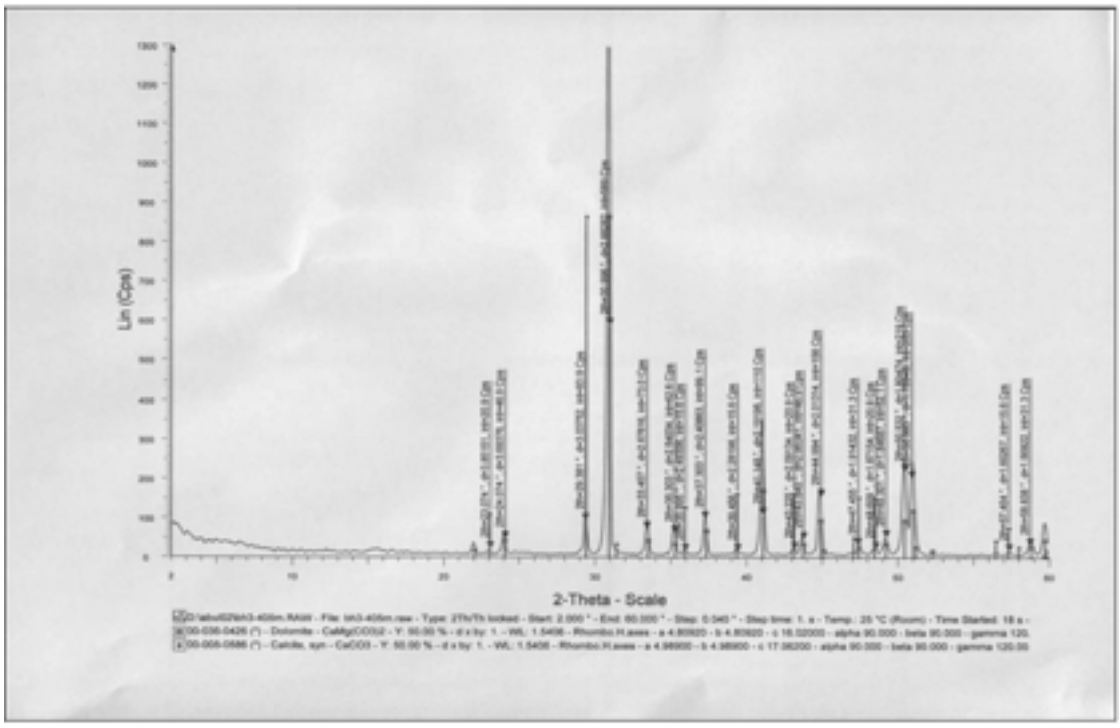

Fig. 55: X-ray diffraction pattern of sample No BH3 40.5 m depth (South Hill).