

### 3. Information on the Borehole KTB-Oberpfalz HB

K. Bram  
J. Kück

### 3 Information on the borehole KTB-Oberpfalz HB

The information given in the first part of this chapter is of importance for carrying out the logging operations and the subsequent data evaluation and interpretation.

The second part deals with the borehole's geometry. Depth differences between driller and logger are explained in part three.

#### 3.1 General information

##### Location

Coordinates: Latitude : 49° 48' 58.8" N  
Longitude : 12° 7' 19.2" E

Gauß-Krüger coordinates: H : 5519 864.4  
R : 4508 775.3

Height above s.l. : 513.8 m (ground level)  
Seismic reference level: 500 m a.s.l.  
Topographic map : TK 25, Nr. 6138 Erbdorf  
. Community : Windischeschenbach  
. District : Neustadt an der Waldnaab  
. Land : Bavaria  
. State : Germany

##### Drilling Rig

. Type : UTB-1 GH 3000 EG  
. Height of rotary table above ground : 11.75 m  
. Depth reference : ground level

##### Casing

. Casing depths : 32" down to 5,7 m (cemented)  
                  24" down to 290,0 m (cemented)  
                  16" down to 3000.5 m (cemented)  
13 3/8"/13 5/8" down to 6013.5 m (cemented)\*  
                  (13 3/8" from 6013.5 m to 2806.7 m)  
                  (13 5/8" from 2806.7 m to 0.0 m)

\* top of cement according to temperature log:  
4350 m

##### Mud conditions

The mud conditions encountered at the beginning of the logging series at 762.5 m and 1720.0 m as well as 3003 m and 4512 m are documented in the KTB-Report 91-2 and KTB-Report 92-1, respectively.

Mud condition at the beginning of the logging campaign  
6018 m on March 13, 1992

Fresh water with 0.69 % Dehydril HT and 0.82 % Hostadrill  
(HOE 3118) (calculated concentration)

- Density : 1.04 g/cm<sup>3</sup>
- Viskosity : 60/59 s
- Conductivity : 1.05 Ohm m at 18 °C
- pH : 11.5

### 3.2 Borehole geometry

The geometry of the borehole is described by its spatial trajectory and cross section. The horizontal projection of the borehole course is shown in Fig. 1. For comparison this figure shows also the projection of the pilot borehole, total depth 4000.1 m, at equal scale, assuming a common surface location.

The horizontal deviation with a maximum value of about 20 m at a depth of 3200 m to 3400 m is extremely small. The overall inclination yields a value of less than 0.2°. The vertical projection onto the WE and SN planes are given in Fig. 2.

Maximum and minimum caliper, reduced by bit size, are given in Fig. 3 together with the lithological profile and the reference gamma ray log. With a minimum caliper rarely exceeding 30 mm the borehole's cross section is strongly ovalized. The long axis corresponds with the direction of the minimum horizontal stress.

### 3.3 Depth difference driller : logger

As already observed and reported when drilling the pilot hole, a depth difference of approximately 1.0 m/1000 m between driller and logger exists. The depth measured by the logger being deeper.

The same difference has been recorded in the borehole KTB-Oberpfalz HB. At 6000 m the difference amounts to 6.3 m.

The reason for the difference is the uncorrected pipe tally. Drill pipe is measured at surface and not corrected for temperature and weight elongation.

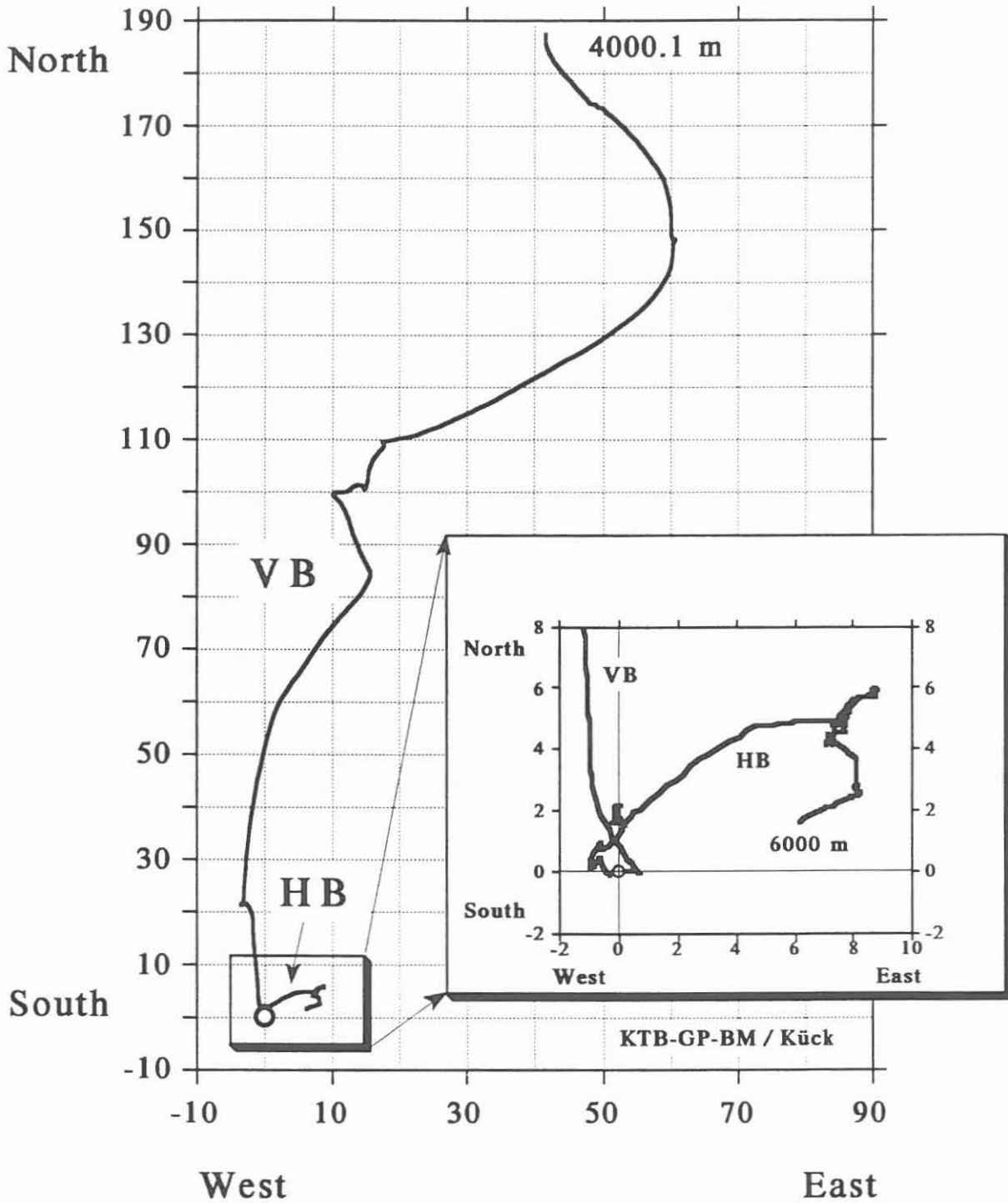


Fig. 1: Horizontal projection of the KTB pilot hole (VB) and superdeep borehole (HB) assuming a common surface location.

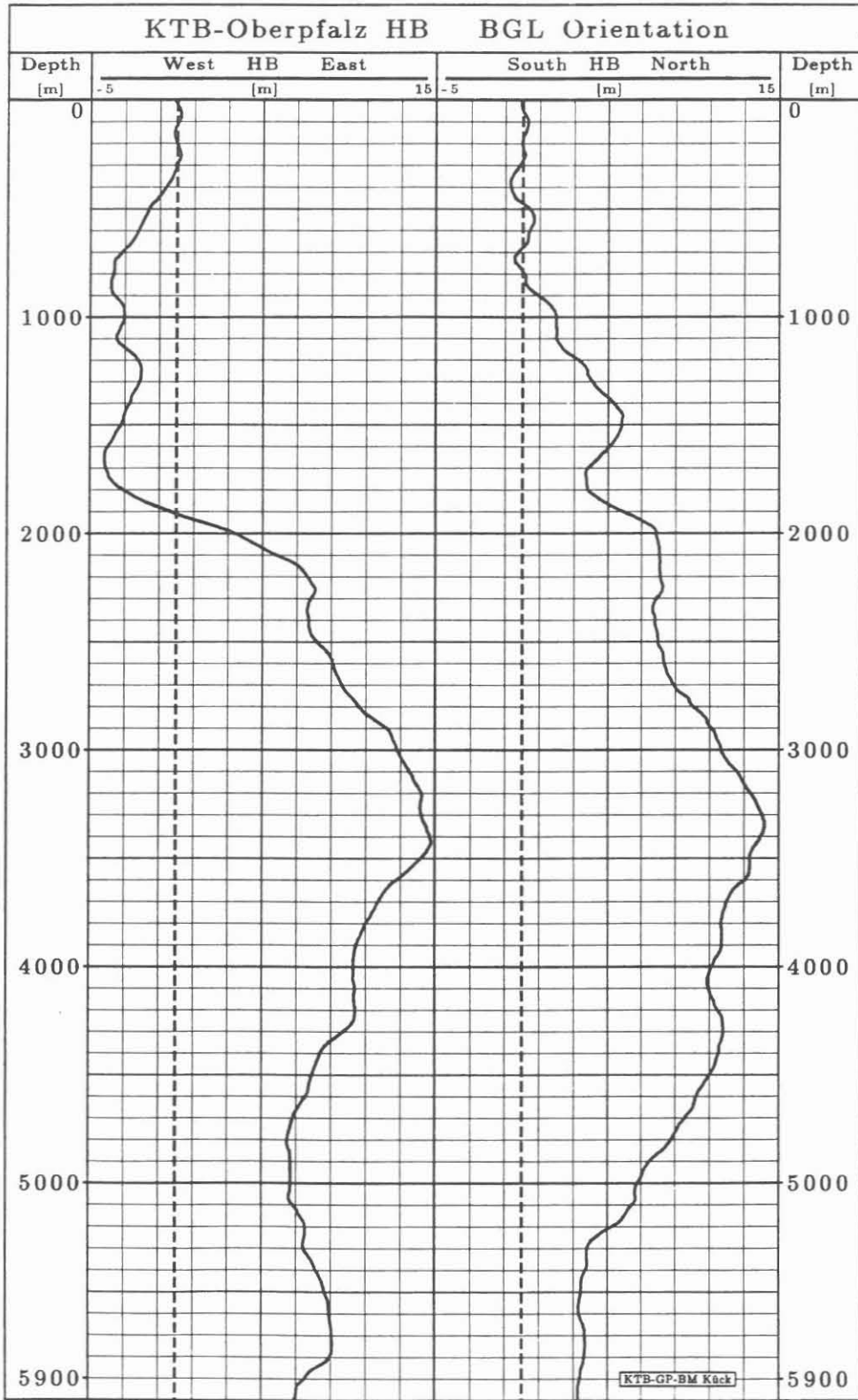


Fig. 2: Vertical projection of the KTB superdeep borehole.

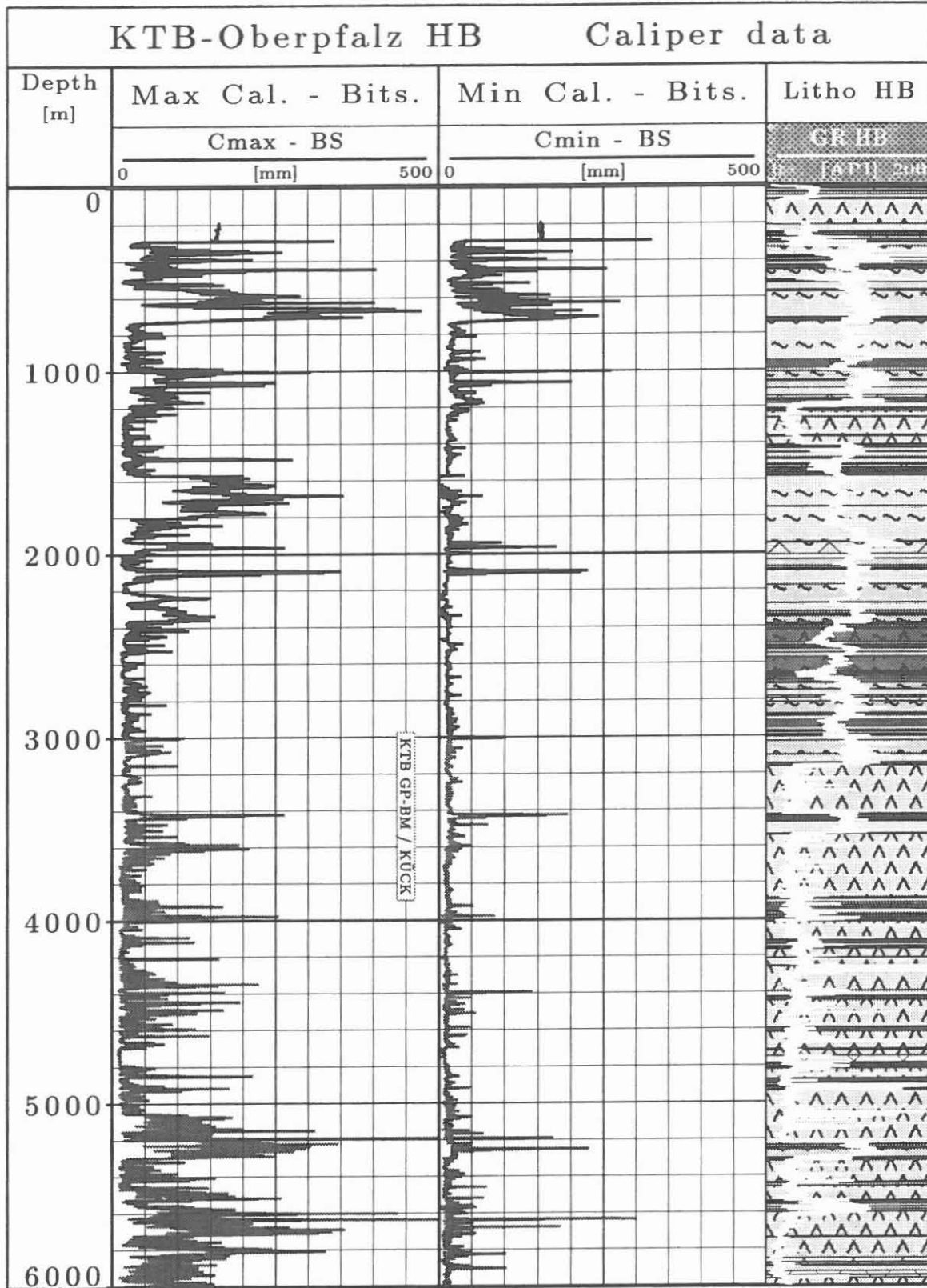


Fig. 3: Maximum and minimum caliper reduced by bit size of the KTB superdeep borehole.