

# INTERNATIONAL GEOTHERMAL DAYS

## “GERMANY 2001”

### Bad Urach, Germany

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The International Summer School program for 2001 was organized by the Germany geothermal organization “Geothermische Vereinigung GtV” (Prof. Dr. Burkhard Sanner, Geeste, Germany) and the International Summer School on the Direct Application of Geothermal Energy (Prof. Dr. Kiril Popovski of Skopje, Macedonia). The meeting was held in Bad Urach, Germany, a small geothermal spa community in Southern Germany on the edge of the Black Forest. The site was at the Graf Eberhard hotel and conference center adjacent to the Thermal Baths. The International Summer School is an official activity of the International Geothermal Association (IGA) education program.

Bad Urach is located in a narrow valley in the heart of the Schwabian Alps, with a delightful downtown consisting of a market place surrounded by older typical beam and mortar walls and tile-roof buildings. Overlooking the town is Hohenurach peak with the ruins of a middle-age castle. The Thermal Baths have both indoor and outdoor pools that are geothermally heated, and the city also has an “Aquadrom” and large outdoor swimming pool. A hot dry rock project was started in 1977/78 and by 1983 a 3488 m deep well was drilled obtaining 147°C water. Finally the well was extended to 4395 m where 170°C temperature was obtained. This resource has the potential for 3 MW electric and 17 MW thermal.

The International Geothermal Days was attended by 118 participants from 26 countries (Argentina, Austria, Denmark, France, Germany, Hungary, Iceland, India, Iran, Israel, Italy, Macedonia, Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Switzerland, Tunisia, Turkey, UK, USA, and Yugoslavia).

The meeting covered three separate geothermal areas: (1) The International Workshop on Direct Application of Geothermal Energy for Balneology and “Water” Tourist Centers convened by Mr. Werner Bussman (D) and Dr. John W. Lund (USA); (2) The International Course on Geothermal Heat Pumps, convened by Dr. Ladislaus Ryback (CH) and R. Burkhard Sanner (D); and (3) The International Seminar on Hot Dry Rock Technology, convened by Mr. Helmut Tenzer (D) and Mr. Markus Haring (CH). Field trips were taken to see the spa at Bad Urach, a heat pump project at Bad Schussenried, the spa community of Baden-Baden, and the European hot dry rock project at Soultz-sous-Forêts, Alsace, France.

Even though balneological uses are the earliest applications of geothermal waters, the medical and recreational benefits have been neglected at geothermal conferences, and often ignored in the development of geothermal resources. However, in the past ten to fifteen years the situation has changed, particularly in Central Europe and the USA. Renewed interest in this applications, especially in concert with other geothermal uses, such as space heating, has made balneology and recreation more attractive to developers. Thus, the workshop on this subject was particularly appropriate and received with interest by the participants.

Geothermal heat pumps, even though using marginal ground and groundwater temperatures, has become the fastest growing development of geothermal resources during recent years. However, this use is characterized by major installations in a limited number of developed countries (Switzerland,



**Figure 1.** *Participants at one of the sessions.*



**Figure 2.** *Thermal Bath indoor pool with exercise class.*



USA, Germany and Sweden) with minor uses in 24 other countries (see overview article in *GHC Quarterly Bulletin*, Vol. 22, No. 1 - March 2001). Because of the increased awareness of this use, the heat pump course was well attended and stimulated lively discussion.

Hot dry rock technology has been much promoted in the EC countries and the USA, but is almost unknown in other parts of the world. It has been treated as “futuristic” technology which is only of interest in other countries probably in 50 years. However, the field trip to the Rhine Graben project at Soultz was of interest to the participants and may stimulate interest in other countries.



**Figure 3.** *Thermal Bath outdoor pool.*



**Figure 4.** *Downtown Bad Urach - City Hall.*

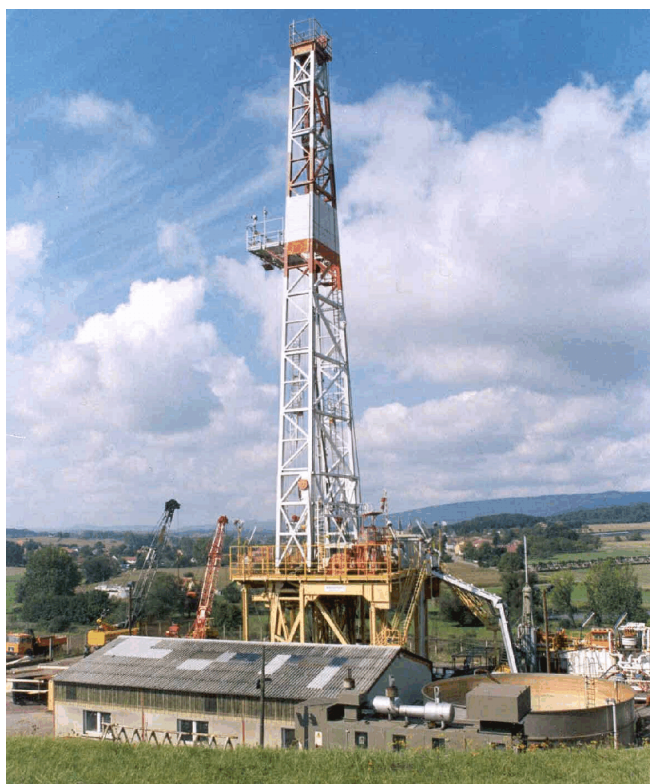
Hard copies of the two proceeding volumes along with a CD, edited by B. Sanner and K. Popovski, are available from the International Summer School Office at %Dr. Kiril Popovski, ul. “Dame Gruev” br. 1-3/16, 1000 Skopje, Macedonia. Orders can also be made via the Internet at <isskiril@soros.org.mk>. The two following papers by R. Curtis on heat pumps and H. Tenzer on hot dry rocks, are from the proceedings and are reprinted courtesy of the International Summer School.



**Figure 5.** *Graf Ebenhard hotel and ruined castle.*



**Figure 6.** *Baden-Baden spa (Caracalla Therme).*



**Figure 7.** *Hot dry rock project at Soultz, France.*