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## Colloquium in memoriam Peter Burri, 26 January 2017, Bern - A Summary

Ueli Seemann<sup>1</sup>, Roger Heinz<sup>1</sup>

### 1 Introduction

On 26 January 2017 the Swiss Association of Energy Geoscientists (SASEG), together with the Institute of Geological Sciences of the University of Bern, organised a Colloquium in memoriam Peter Burri at the above-named institute. Peter was SASEG's president from 2005 to June 2016 when he sadly lost his life in a traffic accident in his hometown of Basel (Switzerland).

The five 20-minutes presentations at the Colloquium (given in German) covered the two main energy themes of Peter's engagement during his 11 years of presiding SASEG – namely

- Peter Burri and Geothermal Energy
- Peter Burri and Hydraulic Fracturing

The Colloquium was well attended by more than 130 people (Fig. 1 and 2), representing an impressive, broad and varied professional background, from SASEG, from the University as well as from outside. What was highly appreciated was the participation of eight members of the Burri family we felt very honoured by their presence.

### 2 Presentations

For the Geothermal Energy theme, SASEG was able to engage three experienced specialists: Markus Häring (Häring Consulting), Peter Meier (CEO Geo-Energie Suisse AG, GES) and Olivier Zingg (Chef de Projet Suisse Romand, GES). Also the Hydraulic Fracturing theme was covered by renowned experts: Kurt M. Reinicke (Prof. em of the Technical University Clausthal Germany)

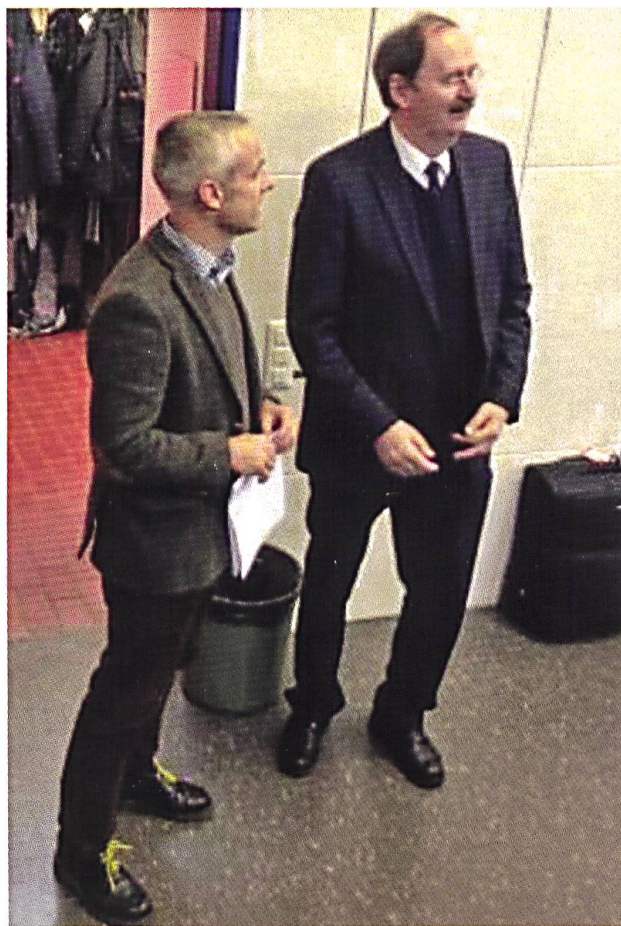


Fig. 1: Prof. Flavio Anselmetti (Univ. of Bern), host of the Colloquium (left) and speaker Prof. Kurt M. Reinicke (Technische Universität Clausthal, Germany) view with satisfaction the large number of people gathering for the Colloquium.

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and Ronald Kozel (section head of the Swiss Federal Office of the Environment, BAFU).

The slides shown during these five presentations are accessible on SASEG's website: <http://saseg.ch/cms/index.php/en/events-documentation-en/event-archive-en>. The five presentations are summarised below:

### **Markus Häring: «Deep Geothermal Exploration in the US»**

Häring presented an overview over «Geothermic Systems», in particular the challenges of «Enhanced Geothermal Systems» (EGS). The challenges for successful EGS-projects largely depend on optimal performances within a given temperature variance window, minimum pressure loss in permeable host rocks and low drilling costs. In this context the «Basel Project» was briefly described and highlighted as a visionary project.

Thereafter the presentation focused on the massive progress in the US in geothermal exploration effort, embedded in the FORGE project (Frontier Observatory for Research in Geothermal Energy) – or in the words of Häring: progress in «Exploration of Inner Space». This is an initiative of the US Department of Energy (Fig. 3). The objective of FORGE is to establish a dedicated EGS laboratory that generates and maintains a fracture network in crystalline rocks at depth with the ultimate aim to commercialise EGS's.

### **Peter Meier: «Introduction of GES»**

Meier introduced Geo-Energie Suisse AG (GES) – a consortium which was founded in 2010 as «Schweizer Kompetenzzentrum für Tiefengeothermie zur Strom- und Wärme-produktion». GES is sponsored by a group of Swiss energy producers. Peter Burri was strongly involved in the foundation of Geo-Energie Suisse and acted as the president of the scientific and technical board.

The presentation provided insight into the phased approach from technology developments to a fully operational application of geothermal energy in Switzerland within a timeframe of approximately 20 years. Critical success parameters in this 20 year plan are - amongst others – the political, legal and financial framework in which the project will be developed.

Work so far has produced an «Overview Map of Switzerland with low risk areas for first pilot projects» as well as an «Overview Map of Switzerland with 130 Potential Sites of geothermic plays between crystalline basement and overlying sedimentary rocks» (Fig. 4).

### **Olivier Zingg: «The Haute Sorne Project, Canton de Jura, Switzerland»**

Zingg presented the geothermal project «Haute Sorne» in the Jura Mountains (near Delémont, Kanton Jura). This will be the first



Fig. 2: SASEG organisers of the Colloquium Bernhard Gunzenhauser (standing) and Ueli Seemann (sitting) talk to members of the Burri family (in 2<sup>nd</sup> row).



geothermal prospect of GES to be tested by the bit. The prospect has a potential to produce electricity for 6'000 households, at total project costs of CHF100 million (Fig. 5).

This impressive presentation highlighted not only the project's technical aspects and challenges but also the importance of detailed integral communication with all stakeholders concerned (town hall meetings, site visits) and political consultation.

### K. M. Reinicke: «Well Integrity as the most important pre-requisite for successful hydraulic fracturing»

Reinicke elaborated on the staggering amount of regulations and control mecha-

nism regarding fracking projects in Germany (Fig. 6). These regulations and control mechanisms act as assurance tools, that in the context of development activities exploration for geo-energy the principle of «best operational practise» is maintained (as is the case for all subsurface projects). Elements of this practise include – for instance – preparation of well location, a robust drilling program, casing, completion and abandonment management etc. Detailed descriptions of these elements are compiled in information manuals. These manuals, which are currently extended to specifically include geothermal operations are intended to serve as operational guidelines for geothermal operators. The ultimate aim of these compilations is to provide companies

### Selected Teams

*Broad Collaboration & Data Rich Sites*

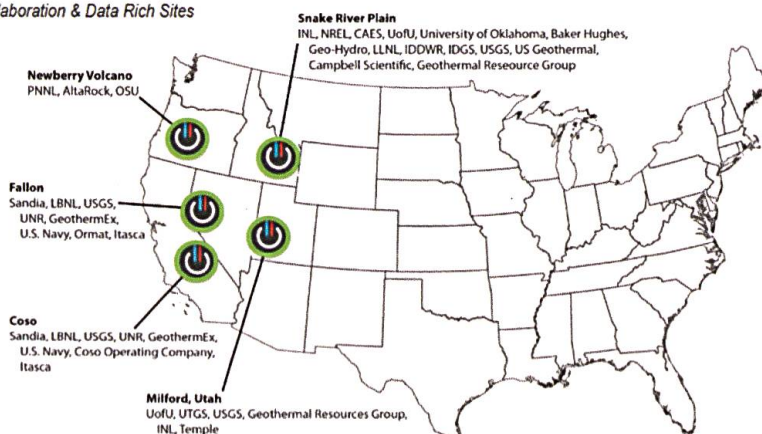


Fig.3: Slide from M. Häring's talk: Location of the five test sites for geothermal research, with the associated institutions.

**130 potential sites for pilot projects were evaluated within different plays within crystalline basement and sediments**

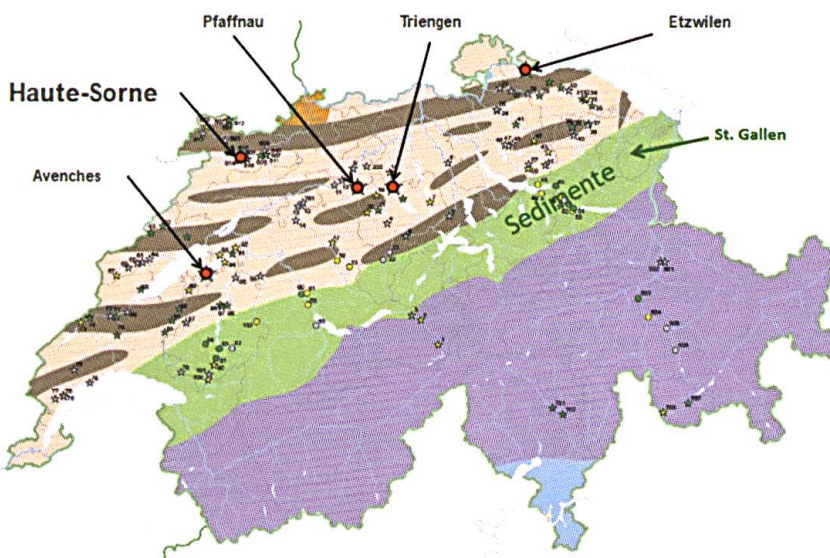


Fig. 4: Slide from Peter Meier's talk: Map of Switzerland with the highest-ranked amongst 130 potential sites for «low-risk» geothermal pilot projects.



involved in hydrothermal and petrothermal projects with guidelines to achieve best possible well integrity. This is the number one operational success parameter for the completion of fracking projects.

Despite the fact that such detailed regulatory tools are issued and controlled by the German regulatory bodies, the hydraulic fracking methodology is still regarded as a dangerous and risky development method by the public at large.

### R. Kozel: «Review on Fracking in Switzerland»

The tools and documentations used by the interdepartmental working group under the lead of OFEV (Swiss Federal Office for the

Environment) for their risk assessment work were briefly described. Three parliamentary interventions (motions, postulates, requests) regarding «Fracking in Switzerland» that were filed at the Swiss National Parliament were presented in detail.

It was impressive to see through which intricate evaluation and consulting channels such answers to parliamentary interventions had to pass before the respective findings could be presented back to Parliament. In one actual case (postulate Trede – Fracking in Switzerland) the matter was approached in four phases (stretching over almost 4 years) and covering six themes, including for instance theoretical, technical, regulatory, environmental and societal aspects (Fig. 7). Although such clearing processes may be

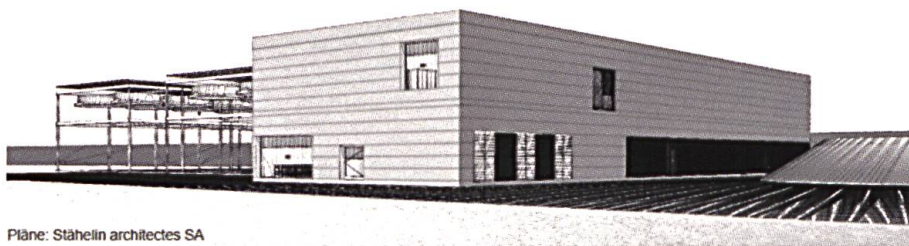


Fig. 5: Slide from Olivier Zingg's talk: Artist's impression and key data for the Haute Sorne geothermal surface facility.

## TU Clausthal BOHRUNGS AUSLEGUNG MIT BARRIERE-ELEMENTEN

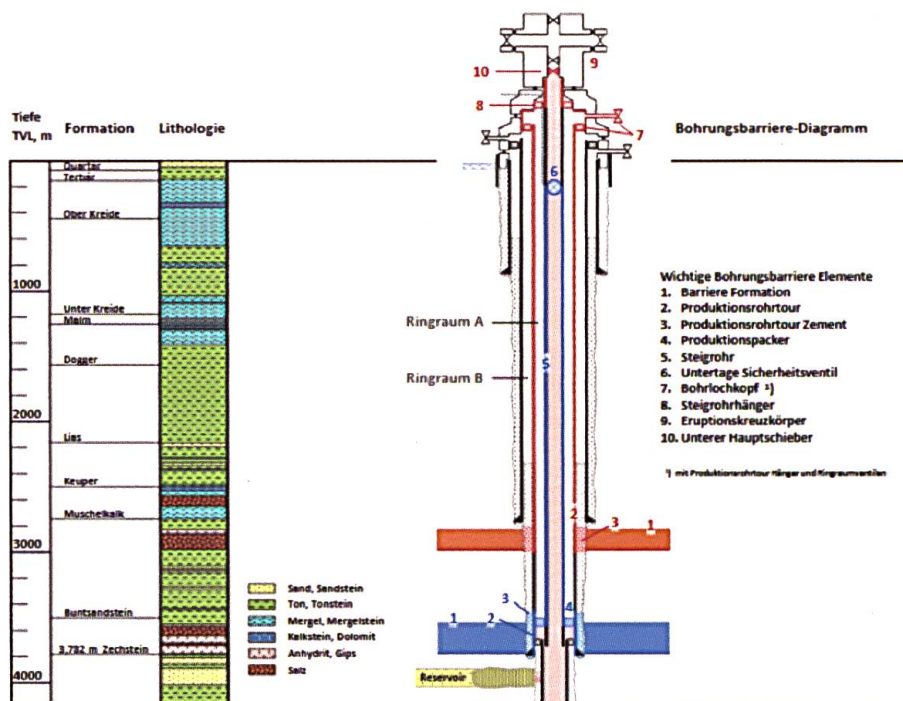


Fig. 6: Slide from Kurt M. Reinicke's talk: Multiple barriers of a drillhole.



considered as a hindrance to technology progress, they are part of a free and open democratic political environment and can finally lead to a broad consensus. On the other hand it has to be mentioned that - judging from the sheer number of such interventions submitted on a cantonal and a federal level - opposition to hydraulic fracking has become somehow a «fashionable» thing to do.

It was interesting to note, that on 3<sup>rd</sup> of March 2017 (hence, not too long after this presentation at the Peter Burri Colloquium) the Swiss Federal Council (Bundesrat) issued a fundamental statement regarding its position concerning «Fracking in Switzerland» in response to above described parliamentary intervention (postulate Trede). In summary the statement concludes: The Federal Council is of the opinion that in the case of deep boreholes (with or without fracking) the risk to humans and the environment can be reduced to an acceptable level if the existing environmental regulations are implemented correctly and if the

principles defined are applied. The Federal Council is refraining from imposing a moratorium on fracking, since the existing legal regulations and the level of knowledge in relation to the technology are adequate for any possible projects. However, for reasons of climate policy, the use of fracking for the exploitation of fossil natural gas reserves is not supported. Further information: [www.bafu.admin.ch/fracking](http://www.bafu.admin.ch/fracking)

### 3 Closing Remarks

The spirit of this Colloquium can probably best be summarised as «Subsurface geology meets Energy industry and governmental representatives». This chain was also very much the chain along which Peter Burri was steering SASEG.

The Colloquium was concluded with a crowded cocktail reception at which many participants stayed for an hour or more (Fig. 8).

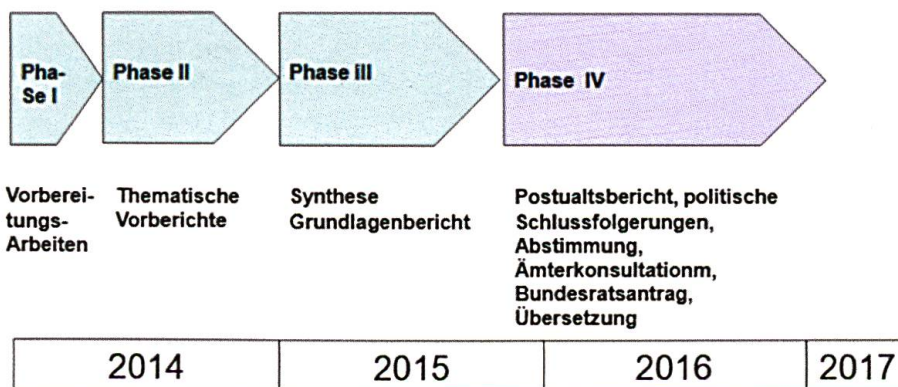


Fig. 7: Slide from Donald Kozel's talk: Timeline of working on a parliamentary postulate, Swiss National Council.



Fig. 8: Crowded cocktail reception after the Colloquium. Regula Gesemann, organiser of the event on behalf of the University of Bern, is the third person from the left in the second row from the front.

