

## Report

### Meeting of the IGU-Commission on Arid Lands, Humankind and Environment

24-26 April 2007, Saudi Geographical Society, King Saud University, Riyadh

Jointly sponsored by the International Geographical Union (IGU) and the Saudi Geographical Society, this year's meeting and the field trips were organized by the Saudi Geographical Society. The following members of the AHE-steering committee attended the meeting: A. Abdel Salam, A. Alwelaie, M. Ashour, G. Brook, O. Bubenzer, and N. Embabi.

**On April 24** the meeting was held at the King Saud University in Riyadh. Participants, including colleagues from different ministries, organizations, and universities, were cordially welcomed by the chairman of the Saudi Geographical Society, Prof. Mohammad Shawqi bin Ibrahim Makki. He opened the meeting and expressed the importance of further research in arid regions and a closer cooperation of researchers from different countries. Professor Mahmoud Mohammed Ashour, chair of the AHE commission, thanked Prof. Makki for the invitation to Riyadh, appreciated the excellent organization and the extraordinary location. Then he outlined the agenda for the three-day event. The eleven lectures on the first day were divided into four sessions. The first three sessions dealt with different facets of protection and sustainability in Saudi Arabia, the fourth session presented new research technologies in arid regions.



*King Saud University, Riyadh*

The first session was chaired by Prof. Abdullah bin Nasser Alwelaie. Firstly, a representative of his Royal Highness Prince Bandar bin Saud Al Saud, Secretary-General of the National Authority for the Protection and Development of Wildlife, emphasized the vital role of protected areas and the protection of a sustainable livelihood in Saudi Arabia. He discussed the Protected Area System Plan of Saudi Arabia and gave examples, e.g. from the Mahazat as - Sayd Reserve, the second largest fenced reserve in the world (2,141 km<sup>2</sup>). Today 14 reservation areas exist. One of the largest is called Harrat al Harrah and covers an area of 13,775 km<sup>2</sup> (for further information see <http://www.ncwcd.gov.sa/englishmain.htm>). The aim is to protect around 10% of the country's total

area with 63 terrestrial and 18 marine areas. Following this paper was a presentation by Prof. Abdul Malik Al-Sheikh, Director of the Centre of Prince Sultan for the Studies of Desertification. He outlined an interesting water harvesting method where water is collected behind dams and is drained into the ground to refill the local groundwater.



*Scientific meeting, April 24-2007, King Saud University, Riyadh*

The second session was chaired by Prof. Mahmoud Mohammed Ashour. It began with Prof. Yousef Alwetaid from the National Authority for the Protection and Development of Wildlife who gave a report on the national strategy to combat desertification. He emphasized that biodiversity is an ethical imperative.

Secondly, AHE member Prof. Abdullah bin Nasser Alwelai, Emam Mohamed Ben Saud University, Riyadh, gave a speech with the title “Wildlife Extinction in Saudi Arabia: A Sad Story”. He described different problems, especially concerning the hunting of animals. One example is the onager (*equus hemionus*), which was quite common until the 1940s but today is very rare.

Thirdly, Mr. Abdou Asiri, Director of the Department of Pastures and Forests, gave an overview of the forests in Saudi Arabia, covering 1.35% of its area, emphasizing their role for wildlife, tourism, and the national plan to combat desertification.

The third session, chaired by Mr. Mohammad Ben Said EL-Soliam, expert of international cooperation, National Commission for Wild Life Conservation and Development, Saudi Arabia, was opened by Prof. Nabil Embabi, member of the AHE commission, Department of Geography, Ain Shams University, Cairo, Egypt. In his speech “The Farafra Depression, Western Desert of Egypt: A product of karstic, fluvial, lacustrine, and aeolian processes” he described the interaction of different processes in the Farafra Depression and discussed its origin. The AHE chair, Prof. Mahmoud Mohammed Ashour, Department of Geography, Ain Shams University, Cairo, Egypt, then formulated proposals for research projects in arid countries. With respect to urgent problems in most arid regions such as water crises, urbanization, desertification and other hazards, he accentuated the importance of joint research projects, the use of traditional and new research and mapping techniques, fieldwork, and capacity building. With regard to future work, especially with regard to the forthcoming IGC in Tunis (2008), he pointed out the importance and the particular role of the Arab countries.

The fourth session, chaired by Prof. Nader Bin Mohamed Seyam, dealt with new technologies. Firstly AHE member Prof. George Brook, Department of Geography, University of Georgia, USA, showed applications of optically stimulated luminescence (OSL). In his presentation on “Late Pleistocene and Holocene Environmental Change Revealed by OSL-Dated Fluvial and Lacustrine Sediments in Etosha Pan, Namibia, and Lake Ngami, Botswana” he explained why paleo studies are relevant in arid land development and demonstrated that the climatic changes in this part of southern Africa also affected the people. In sum, during the middle to late Holocene, lake variations seem to mirror changes in northern Africa suggesting that conditions in the northern Hemisphere, or at least northern Atlantic Ocean, may have affected, and still be affecting climate in Southern Africa.

AHE secretary Dr. Olaf Bubenzer, Department of Geography, University of Cologne, Germany, then presented “New Remote Sensing Data for Geomorphological and Geoarchaeological Research in Arid Regions”. He showed, for example, that morphometric parameters derived from elevation data can be used to reconstruct palaeohydrological patterns, the location of former dunes and favourable ecological sites. Therefore, in combination with archaeological data, a realistic reconstruction of Holocene landscapes is possible.

Thirdly, on behalf of Prof. U. Radtke, Department of Geography, University of Cologne, Germany, Dr. Olaf Bubenzer gave an overview of the new dating techniques “Electron Spin Resonance, ESR, and Optically Stimulated Luminescence, OSL”. He demonstrated that these techniques are significant chronological tools in Quaternary research. They are applicable to a broad variety of objects and materials from geological and archaeological contexts and are well suited for resolving records of Quaternary environmental changes in particular beyond the range of the widely used radiocarbon dating technique.

Finally, in his paper “Geomorphological-Climatological Interactions in the Dakhla-Oasis, Western Desert of Egypt”, Dipl.-Geogr. Mathias Ritter, Department of Geography, University of Cologne, Germany, presented results from a new climatic station. Based on hourly recordings, uncommon for stations in Egypt, diurnal effects were detected. The results demonstrate that the morphological positions of climatic stations, particularly in arid regions, have to be considered when interpreting climatological data.

**On April 25** the Saudi Geographical Society organized an excellent field trip attended by students to the surroundings of Riyadh. The trip began with AHE member Prof. Alwelaie introducing the famous landscape of the Central Plateau to the 22 participants. The plateau is composed of mountain sedimentary rocks curving around the crystalline shield of the Central Plateau and the cuesta of the Jebel Tuwaiq Escarpment is 800 km long. Then, two representatives of the Ar-Riyadh Development Authority (ADA) took us to the Wadi Hanifah recreation project, a long-term programme for the preservation and proper utilization of a 75 km stretch of the valley near Riyadh. They outlined what has already been accomplished and what the valley will be like when the reclamation project is complete. The wadi is fed by a number of tributaries that drain surface water from a very large area of the plateau (approx. 4,000 km<sup>2</sup>) and the water flow through the wadi was a factor in the original location of Riyadh in the dry central highlands of Saudi Arabia. Wadi Hanifah is also the natural sewage channel for the Saudi capital, which has about 4.3 million people. As a result, to the south of Riyadh the valley now has a continuous watercourse due to the daily discharge of about 400,000-600,000 m<sup>3</sup> of ground water, rainwater and treated wastewater from the capital. This continuous flow of water and treated sewage has created a unique human-made stream in the middle of the dry plateau region.

Currently, Wadi Hanifah is being exploited by the increased demands of the rapidly expanding Saudi capital. In light of Wadi Hanifah's great potential for recreational use, the ADA formally accepted a Development Strategy Plan in 1994, thus marking the beginning of a long-term programme for the preservation and proper utilization of the whole valley. The field trip demonstrated the progress of the project. Meanwhile, a long section of the Wadi has been returned

to its natural state with landscaping in many areas, a dam has been built to protect against flooding, and a biological cleansing plant is under construction. For further information see: [http://archnet.org/library/sites/one-site.tcl?site\\_id=4168](http://archnet.org/library/sites/one-site.tcl?site_id=4168).



*Field trip, 25 April-2007, Jebel Tuwaiq Escarpment*



*Field trip, 25 April-2007, Wadi Hanifah recreation project*

Following an invitation of the Supreme Council Commission for the Development of Riyadh City, field trip participants had lunch at the Tuwaiq Palace in the diplomatic quarter. The group used the pleasant atmosphere for a stimulating scientific and intercultural exchange of experiences.





*Field trip, 25 April-2007, Tuwaiq Palace, diplomatic quarter*

In the evening there was a meeting of the AHE members and guests from the Saudi Geographical Society in the Ramada Shrouq Hotel. Prof. Ashour thanked the representatives of the Saudi Geographical Society for the excellent organization and opened the discussion. Regarding the impressions of the last two days, the group concluded that the combination of a scientific conference and field trips is ideal and that the exchange of knowledge between colleagues from different countries is extremely fruitful. It was noted that field trips are especially valuable as they provide an insight into the characteristic geographical features of a country and improve scientific and intercultural understanding.

Concerning the main topics of this meeting, the group reasoned that countries with arid lands have adopted many approaches to achieve a better understanding of the scientific basis, impacts, vulnerability, adaptation and mitigation of environmental change and desertification. However, these experiences need a synopsis. Therefore, the AHE commission planned the following activities for the next years:

1. Next AHE meeting

If possible, the next meeting will be held in Oman in spring 2008. AHE member Dr. Ahmed Abdel Salam will look for a location and appropriate field trips. AHE member Prof. Brook will examine the possibility of sponsorship by an oil company.

2. IGC Tunis 2008

In coordination with the Saudi Geographic Society, which is planning two paper sessions dealing with aspects of the physical geography of Saudi Arabia, the AHE commission decided to propose the following sessions for the IGU congress in Tunis:

- a. Environmental problems in arid regions and possible solutions;
- b. Preserving the natural and cultural landscapes in arid regions;
- c. Social, urban and regional development in arid lands;
- d. Application of remotely sensed data in arid regions;
- e. Human adaptation to past climate changes in presently arid lands.

All AHE members will look for representative chairs for these sessions. It is planned to bring together colleagues from Arab countries and colleagues from other countries who work in arid regions anywhere in the world. It is hoped that the results of the sessions will be published in international journals (e.g. J. of Arid Environments), as special volumes, or in a book edited by the commission members.

### 3. Electronic Atlas of Arid Lands

The AHE group decided to build up an electronic photo atlas of arid lands by the use of the AHE – homepage. For this reason Dr. Bubenzer will create an online form.

After about three hours, Prof. Ashour closed the fruitful meeting and thanked all participants and particularly the members of the Saudi Geographical Society.

**On April 26** the group attended a field trip to the National Museum and the gardens of the King Abdul Aziz Historic Center, Riyadh. The extraordinary museum was established to become a national landmark Kingdom-wide and to contribute in enriching the course of education, cultural enlightenment, development of belongingness and to become an eternal message. It occupies an area of 28,000 m<sup>2</sup> and offers a modern educational environment for different community strata and different levels of education. Displayed items are diversified to include antiques, documents, manuscripts, display board, in addition to the use of modern aids and documentaries. The museum is distinguished for the integrity of its presentations, presenting a serial topic about the beginning of the creation of the universe up to the present time where the Arab Peninsula represents the pivot. Each hall is unique in presenting an objective integrated and independent presentation. The museum is composed of eight main presentation halls arranged in successive historical order so that the visitor can enter through an architectural design that consider the time chronology (for more information please visit: [http://www.arriyadh.com/En/Tourism/LeftBar/Musems/The-National-Museum\\_En.doc\\_cvt.asp](http://www.arriyadh.com/En/Tourism/LeftBar/Musems/The-National-Museum_En.doc_cvt.asp)).



*Visit of the National Museum, Riyadh*

Accompanied by I. A. Aljutaili, Ministry of Municipal and Rural Affairs, Riyadh, the group then visit a traditional Suq, the Al-Masmak Palace and the Kingdom Tower. The latter, with a height of 301 m, is the tallest building in Saudi Arabia and was finished in January 2001. It was planned from the beginning as an iconic symbol of Saudi Arabia, and the final design was selected after a 3-year process that included over 100 submissions by major architectural firms. The tower's unique shape culminates in a triangular opening spanned by a 56 m skybridge with a public observation deck. This deck provides an amazing view of the growing city of Riyadh.



*View to Riyadh from the Kingdom Tower*

Finally, the group visited the Old Dir'aiyah at Riyadh, a magnificent historical site that is presently under restoration. Located on the outskirts of northwestern Riyadh, Old Dir'aiyah was built up from an erstwhile ruler of the Al Saud clan in the year A.D. 1466. This fortress was the residence and stronghold of the ruling family of Saudi Arabia until the early 20th century.

Report: Olaf Bubenzer, 2007-05-07