2008 年度 陸域環境研究センターセミナーの記録

2008. 6. 3 第 100 回セミナー　参加者 28 名

L. Janchivdorj（モンゴル科学アカデミー地生態学研究所　水資源・利用室長）

Water Resources and Management: Challenges of Mongolia

One third of the Mongolian territory is occupied by surface water networks, of which 70-90 per cent are nourished by precipitation. Consequently, as Mongolia is receiving less and less rainfall, many rivers and streams have dried up. This process has been occurring in the country for the last two decades. Due to the mountainous landscape, almost all rain-fed rivers run to the Arctic and Pacific Ocean Basins and most of the surface run-off flows out of the country.

The sustainable rate of surface and ground water use has already been exceeded in some areas: for example, in the Tuul River and Shariin River Basins. This situation is likely to become more widespread if current trends continue. Overuse has not only led to the loss and depletion of water resources, but also caused a decline in water quality. Changes have been observed in the quality of water near the capital city of Ulaanbaatar, where wastewater is being discharged into the river.

Following the adoption of a free market system, the economic structure changed and the mining industry quickly developed. Correspondingly groundwater pollution in mining areas has increased markedly. A set of ecological criteria for guiding the safe utilization of groundwater resources needs to be determined, and a better understanding of ground-water system regimes is required in order to prevent exploitation beyond self-renewable levels.

Research work for the identification of groundwater resources, recharge rates, dynamics of groundwater within the aquifers, and interconnections between shallow and deep aquifers plays an important role in assessments of current and future water supplies for Mongolia. The use of isotope techniques is an important aspect of groundwater resource management. The analysis technique, used together with traditional hydrologic tools, provides a rapid low cost understanding of large-scale groundwater systems. The National Water Resources Development Program is focused on training professionals and coordinating academic organizations' input to integrated water resource management policy making.

2008. 6. 6 筑波大学科学技術週間セミナー　参加者 65 名

森永由紀（明治大学商学部）「筑波から雪原，草原への旅」

1982 年に筑波大学環境科学研究科に入学して以来訪れた北アルプス，ネパール，南極，チベットでは，時にはかなく，時に岩をも削る力強い雪との出会いを通じて，自然のダイナ

ミックさを垣間見ることができました．2003 年から 2 年間の子連れのモンゴル滞在中には，水と草を求めて家畜とともに移動する遊牧民と出会い，草原での人と自然のかかわりが，現在の私の研究対象となっています . 筑波で始まり，つまづきながらも続けてきた超マイペースな旅で考えた「地球科学と持続可能性」について，お話したいと思います．

2008.11.14　第 101 回セミナー　参加者 12 名

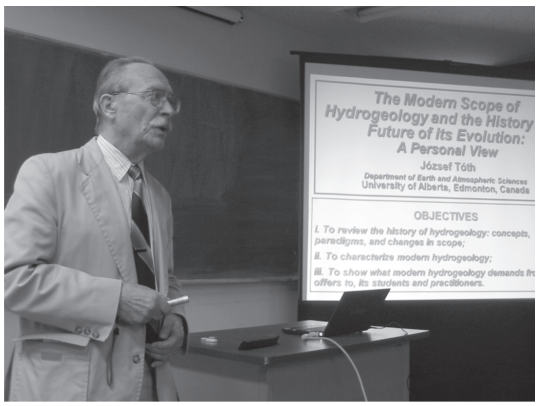
J. Tóth (Department of Earth and Atmospheric Sciences, University of Alberta, Edmonton, Canada)

The Modern Scope of Hydrogeology and the History and Future of its Evolution: A Personal View

The objectives of presentation were i) to review the history of hydrogeology: concept, paradigms, and changes in scope, ii) to characterize modern hydrogeology and iii) to show what modern hydrogeology demands from, and offers to, its students and practitioners.

As the future envisaged, Prof. Tóth mentioned that i) in general: Hydrogeology has come of age. It is now both a basic science and a specialty. Because its maturity no major conceptual developments can be expected in the foreseeable future. Instrumental, analytical, and computer techniques continue to progress; recognition and application of hydrogeology will expand in and to increasing numbers of specialties. “Dry rock” is being replaced by “Wet rock” . ii) in particular: Merger of the Branches of Natural Sciences and Engineering requires broader educational basis than before: geologist must learn the quantitative rigor of the engineer, engineers must respect the geologist’s lack of rigor. Birth of specialized (hyphenated) sub-disciplines will continue and accelerate: Contaminant-, Eco-, Petroleum-, Forest-, Karst-, Agricultural-, Environmental-, and so on, “Hydrogeologies”

As the summary of his presentation, he emphasized that modern hydrogeology has four paradigms: 1. Scale-dependent hydraulic continuity; 2. Basin-wide problem-solving; 3. Geologic Agency (gravity-drive zone); 4. Geologic Agency (crustal zone). (from the lecture by Prof. Tadashi Tanaka)



Lecture by Prof. J. Tóth at the TERC Seminar on 14 Nov., 2008