

AusIMM Visiting Lecture Programme – 2011 Report 1

Tony Christie, Jeff Mauk and Dave Craw, 6/6/11

In 2009, the New Zealand Branch of the AusIMM established a Visiting Lecturer Programme to fund a visit by a prominent scientist from the northern hemisphere to provide short courses and lectures at several centres in New Zealand. The programme seeks to provide a focus for AusIMM members to meet earlier in the year than the AusIMM New Zealand Branch Annual Conference (typically August-September), and to fulfil the education objectives of the AusIMM. Short courses are sometimes held in association with the Annual Conference, however the Visiting Lecturer Programme provides for a higher level of funding to enable: 1. inviting a visitor from the northern hemisphere, 2. a longer short course, and 3. involvement of a wider audience. In late 2010, the New Zealand Branch agreed to host two visiting lecturers per year from 2011, one from the northern hemisphere and one from Australia.

In 2011, the visiting lecturer from the northern hemisphere was Bob Seal from US Geological Survey, Reston, Virginia, USA. Bob presented a short course and two lectures at various locations throughout New Zealand during March-April as follows:

Short course: Environmental Geochemistry for Modern Mining

This two-day short course examined and summarized current topics in environmental geochemistry as they related to modern mining. Environmental geochemistry was shown to be an important aspect of all stages of modern mining from exploration through permitting, production, and closure. An evolving regulatory environment and innovations in mining and ore-processing techniques necessitate an up-to-date, forward-looking approach to environmental geochemical issues related to mining.

Bob finished the short course with an amusing quiz that put people at ease and generated some with the students following the short course.

Lecture A: Environmental Challenges for Modern Mining - Acid Drainage and Beyond

Mining was shown to present a number of environmental challenges of a geochemical nature. Acid generation and release in the form of acid-mine drainage has long been recognised as a significant issue. Sites with high potential for acid generation typically have a host of other element-specific challenges. Likewise, some sites without significant acid-generating potential can have significant geochemical issues. Case studies were used to illustrate both. It was demonstrated that a thorough understanding of the source, transport and fate of elements and related compounds, is required to effectively address these issues at future, current, or abandoned mines.

Lecture B: Mining, Society, and the Environment - The Role of Geology and Environmental Geochemistry for a Sustainable Future

Bob noted that the relationship among mining, the environment, and society have evolved to the point where environmental protection is an integral part of the mine planning and development process, and needs to be started at the earliest stages of the process to insure the greatest effectiveness. A key feature that distinguishes mining from most other industrial activities is that the potential "contaminants of concern" are a natural part of the landscape prior to mining and may in fact be the commodities being sought. To make environmental management as effective and cost efficient as possible, it must begin at the earliest stages, even at the exploration stage or before. Knowledge of the underlying geologic characteristics of ore deposits, and the underlying biogeochemical processes that control the release, transport, and fate of elements and related compounds of concern are essential for accomplishing this goal.

Visiting Lecturer Programme, March-April 2011

Date	Location	Presentation	Attendance
28 Mon	University of Auckland	Short course (2-day, day 1)	46
29 Tue	University of Auckland	Short course (2-day, day 2)	46
30 Wed	Waihi	Lecture A at the Waihi mine	19
31 Thur	University of Auckland	Day-time lecture B	35
1 Fri	Victoria University of Wellington	Lecture B	15
4 Mon	Globe-Progress mine, Reefton	Lecture A at the mine	16
4 Mon	Westport	Lecture B	13
6 Wed	Macraes mine, Otago	Lecture B at Macraes mine	12
7 Thur	University of Otago, Dunedin	Short course (2-day, day 1)	23
7 Thur	University of Otago, Dunedin	Lecture B	18
8 Fri	University of Otago, Dunedin	Short course (2-day, day 2)	23

A planned lecture at the University of Canterbury on Tuesday 5 April was cancelled, because of local problems in organisation following the Canterbury earthquakes.



Bob Seal lecturing at the University of Otago.

The short course and lecture in Auckland were the largest attended events, with 46 and 23 respectively. Audiences at the three mines were predominantly mine and exploration geologists (and two from Department of Conservation at Reefton), whereas the short courses were attended by university staff and students, mineral exploration geologists, consultants and research geologists.



Some of the short course attendees at The University of Auckland.



Short course attendees at University of Otago.

Bob was given tours of the three mines that he visited. Jeff Mauk took him to Waihi, where Pieter Fransen toured them through the mill and water treatment facilities, tailings and waste rock sites, and a number of water management and monitoring sites.

At Globe-Progress, Craig McIntosh showed Bob around the open pit, waste rock piles, the mill, and the water treatment facility.

Dave Crow took Bob to the Macraes mine and, along with Jenny Autridge and a mine geologist, showed Bob around the pit, the tailings facility, waste rock piles, water management facilities, and the trout hatchery.

Recommendations

Bob Seal gave excellent short courses and lectures that created a high level of interest in those that attended. His short course quiz was very successful. Following his visit, he noted that if he could have predicted how well the quiz was going to be received he would have also organised ones for the lectures, particularly those given at the mines. He noted that he would have liked to get some 'formal' feedback on the short courses through course evaluation forms. Another recommendation was to possibly organise a lunch venue and an after short course dinner to keep people together and increase discussion.

From the organiser's viewpoint, we think that the programme was extremely successful, and we encourage the NZ Branch Committee to continue supporting the visiting lecturer series with Basil Beamish for the University of Queensland later this year and two visiting lecturers in 2012.