

(M-33)

KRAFLA (17, *) (65°43'N, 16°46'W) North Iceland

The inflation of Krafla after the September 1984 eruption apparently came to a halt during January 1985. Recording tiltmeters at Krafla and Viti showed no significant inflation from January through late May although the conventional winter noise would have prevented detection of a miniscule inflation. After the winter noise subsided in April 1985, a very slight tilt, indicating deflation, prevailed in the Krafla power station, where the tilt rate was approximately 6 microradians per month.

On 21 May, however, significant inflation started at Krafla with a tilt rate of about 10 microradians per month. This corresponds to an inflation rate of about 1 mm per day at Leirhnjúkur. This inflation continued until 1 July. A noticeable subsidence was recorded 1-3 July on the Krafla and Viti tiltmeters. The tilt at Krafla in the conventional subsidence direction was about 14-17 microradians, corresponding to land subsidence of about 5 cm at Leirhnjúkur. The Viti tiltmeter showed about 12 microradians of tilt toward the WSW, the usual subsidence tilt direction. This corresponds to a removal of $2 \times 10^6 \text{ m}^3$ of magma from the Krafla magma reservoir.

After 3 July no noticeable inflation or deflation was observed at Krafla or Viti, although minimal inflation may have occurred during November. An apparent deflation at Krafla in July and early August was probably caused by thermal stress, but similar tilt was observed in July and August 1983 and 1984. This signifies an annual cycle in tilt at this station. Dry tilt measurements during the last days of May and again in late October indicate subsidence centered near Leirhnjúkur between those dates. The maximum subsidence was about 4.5 cm, similar to that indicated by the Krafla tiltmeter on 1-3 July.

Although obvious ground deformation occurred 21 May-3 July, the net ground movement throughout the year was near zero and only further measurements in 1986 will show if any measurable deformation is in progress. Measurements of ground deformation at Krafla in 1985 do not allow any conclusion regarding the present progress or expected continuation of the activity. The inflation, if any, is slower than during any previous one-year period after 1975. The small subsidence event of 1-3 July is different from all earlier events, as no inflation was observed after the subsidence. Thus the behavior of Krafla is greatly different from what it has been during the previous 9 years and the experience from those years is of no use in predicting the continuation of activity at Krafla. (Information from: E. Tryggvason, Nordic Volcanological Institute, University of Iceland, Reykjavik, Iceland. From: SEAN Bulletin, vol.10, 1985, no.12, p.8-9.

OBITUARY

It is with deepest regret that the Bulletin of Volcanic Eruptions reports the deaths of Professor Emeritus Robin Hamley Clark and Professor Kazuaki Nakamura in 1987. Since the beginning of publication they have very much contributed to the Bulletin. The loss to the Bulletin is considerable.

Editors



Prof. Emeritus Robin Hamley Clark
(1921 - 1987)

Robin Hamley (Bob) Clark, Emeritus Professor of Geology at Victoria University of Wellington died suddenly on 8 October aged 66, while visiting Wellington.

Bob was born in Otahuhu. The subject for his Ph.D. at Edinburgh University was the petrology of Arthur's Seat Volcano in Holyrood Park, Edinburgh, under the guidance of Professor Arthur Holmes, a person who profoundly influenced Bob's geological thinking. In 1951 he became a lecturer in Geology at Edinburgh University, and in 1954, when only 32, was appointed to the Chair of Geology at Victoria University College (later Victoria University of Wellington) following the retirement of Sir Charles Cotton.

The Geology Department at that time was small and its facilities and accommodation poor. Under Bob's leadership the Department expanded and several new staff appointments were made. In 1958 the Department moved from the "prefabs" in Salamanca Road into the newly built Easterfield Building, and there followed a period of major growth for the Department. Bob immediately developed a research programme in volcanic petrology, and in 1957 began the University's Antarctic Research Programme which continues today through the Antarctic Research Centre.

In 1967, Bob, Harold Wellman and Andy Duncan, then a Ph.D. student, visited White Island. They realised that the volcano was an ideal laboratory for studying active volcanism and testing prediction techniques, and so began the White Island Surveillance Programme, another of Bob's initiatives which continues today. A level survey net was established and a prediction made that an eruption was imminent. That eruption took place the following year.

In 1975-76 Bob was awarded a Fellowship of the Japan Society for the Promotion of Science with which he

visited Hokkaido University. Whilst there he initiated an unofficial exchange between Hokkaido and Victoria University which saw several visits in each direction. Afterwards he visited Canada and went as New Zealand delegate to the SCAR conference in Mendoza, Argentina.

Immediately after returning from this trip Bob presided over the long-planned move of the Geology Department into the Cotton Building, and through research and equipment grants the Department became one of the best equipped in the southern hemisphere.

Many superlatives have been used to describe Bob Clark. When he retired from Victoria University in 1983 he was variously described as a 'colossus of the campus' and 'the last of the benevolent autocrats'. He was a man who contributed immensely to life both on campus and amongst his friends in the yachting world. He was a man of strong convictions but also a man of mental dexterity who made the Geology Department at Victoria University a centre of scholarship. He expected and got loyalty from his staff and students and in return fought persistently and vigorously for them. It follows that he was receptive of complaints, suggestions, and appreciation from students and staff alike at all times. He was a practical man, a keen yachtsman and fisherman, but also a family man. He was deservedly awarded an O.B.E. on his retirement for services to science.

Bob Clark is sadly missed by all his colleagues and friends. His memory will live on in the programmes which he established, and in the many worthwhile developments which he championed. Bob is survived by his wife Lyn, daughter Jennie, and son Malcolm.

J. W. COLE
University of Canterbury

Professor Kazuaki Nakamura of the Earthquake Research Institute, University of Tokyo, died on 12 August, 1987, at the age of 54. In the afternoon of 7 August, he fell unconscious due to the sudden cerebral hemorrhage, while he was addressing to the members of a small group of earth scientists at the University Club. Despite the immediate medical attention, he did not regain consciousness. He is survived by his wife, Mizue, and two sons. Kazuaki Nakamura was born in 1932 in Tokyo. After graduating from the University of Tokyo in 1955, he started his research career as a geologist. His Master's program was on the Quaternary river terraces, where he was first introduced to the field of volcanology in studying the tephra layers for the correlation of the terraces. He chose a volcanic stratigraphy of the Izu-Oshima volcano as the topic of his Ph. D. dissertation which turned out to be an epoch-making



Prof. Kazuaki Nakamura
(1932 - 1987)

piece of work. He demonstrated a very regular pattern of eruptive activity of Izu-Oshima volcano in the last 10,000 years, which he was able to explain with a set model of explosive eruptions of a typical basaltic volcano. His work cast much light on the eruptive mechanisms and dispersal of tephra, structure of the volcanic edifice and the mode and rate of magma discharge from the volcano. Immediately after the eruption of Taal volcano, Philippines, in 1965, he visited the devastated area. This was his first visit of volcanoes outside Japan. After this, he visited many volcanoes over the world, made many friends, and produced an impressive number of scientific papers. His visit to Iceland made him deeply interested in the relation between the structure and distribution of the volcanoes and the tectonic stress. A series of his papers on the linear arrangement of lateral cones and dykes of the volcano in the direction parallel with the regional compressional stress field of the upper crust, gave a strong impact and is now a widely accepted standard. In his later years, Nakamura's scientific interest shifted more toward plate tectonics and related topics. Much of his brilliant and penetrating thought has deeply influenced especially the younger scientists. He was a dedicated teacher and helped great deal in promoting international cooperation in the volcanological research. He was one of the most important figures in the Japanese Volcanological Society and was very much active in many of the international conferences and joint programs. Professor Nakamura will be deeply missed by us, his colleagues at home and abroad, because of his important role in the current volcanology and his fascinating personality.

S. ARAMAKI
University of Tokyo