PREFACE

From 2001 to 2004, research was carried out in Namibia, under a Grant-in-Aid of Scientific Research (Project No. 13371013 headed by Dr. Kazuharu Mizuno, Kyoto University) from the Ministry of Education, Science, Sports, Culture, and Technology of Japan. This supplemental issue presents the results of this research project.

Since the Last Glacial Stage, changes in temperature, precipitation, ocean currents, and wind systems have had complicated effects on the environment of Africa, where the dry regions have expanded and contracted repeatedly. In recent years, global warming has become a major factor, and this situation has been further complicated by desertification following a decrease in precipitation and the destruction of vegetation. An upsurge in human activities resulting from the rapid increase in population, such as the expansion of farmland and grazing land leading to soil degradation, and deforestation owing to excessive collection of firewood, have contributed to desertification. Environmental changes have a great influence on people's lives in this region, given that agriculture is the main form of employment in most African countries.

In the severe environments of semi-arid areas, even a slight change in the environment can produce relatively large changes overall. Environmental changes lead to a chain reaction, which is amplified by synergistic effects that affect a wider area through the general circulation of the atmosphere. Therefore, it is extremely important to grasp the dynamic relationships between the natural environment and human activities, not only locally, but globally.

This research project sought to determine the environmental history of the semi-arid area of Namibia from the Last Glacial Stage, and recent environmental changes, including changes in climate, topography, vegetation, soil, land utilization, and agriculture. The project involved interdisciplinary cooperation with experts in geomorphology, Quaternary research, climatology, phytogeography, pedology, plant ecology, and tropical agriculture, an approach that is very important for a project like ours.

In the semi-arid regions of Africa, the effects of climatic changes on the local environment and ecosystems remain unclear. Subtle changes in climate, topography, vegetation, soil, and wild animal populations, as a result of human activities, can have a great effect. It is anticipated that our research will stimulate further study of natural environments in Africa.

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