

Analytical Study of Human Health and the Environment Using Remote Sensing Information

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In public health research, remote sensing has been employed in studying relationships between disease and the environment. Remote sensing data have come from Landsat (United States), Spot (France), and Mos-1 (Japan). A mathematical model developed by S. Uchiyama et al. (1981) could be applied to prefectures in Japan and other countries also. Results of such research would be useful in the prevention of disease and promotion of health.

Since 1980, we have been conducting a project entitled "An Epidemiological Study on the Relationship of Environment and Disease by Systematization of Remote Sensing Data and Ground Data" in Hyogo and Okinawa prefectures in Japan, Laguna and Pinatubo areas in the Philippines, Singapore and the southern part of Thailand. Our reports on remote sensing epidemiology are as follows: 1) Study on 8 Pilot Areas in Hyogo; 2) Study on 4 Areas in Hyogo. 3) Study in Okinawa; 4) Laguna District in the Philippines; 5) Awajishima in Hyogo; 6) Remote Sensing Analysis in Singapore; 7) Epidemiological Study on Filariasis in South Thailand; 8) Satellite Observation of Mt. Pinatubo Volcanic Dust.

Hyogo ken is located in western Honshu, bordered by the Sea of Japan to the north, Osaka Bay and the Inland Sea to the South. The middle portion is occupied by a ridge of mountains and highlands; the area to the south of these mountains contains some broad coastal plains traversed by rivers. Most of Hyogo's population is concentrated in this area, where the climate is temperate and comparatively dry. On the other, the area to the north is hillier and more humid, with snowy winters typical of the Sea of Japan coast. The island of Awajishima in the Inland Sea is one of the largest of Japanese off-shore islands.

We have started research examining the health of the inhabitants living in these two areas, the north and south areas of Hyogo. In performing Principal Component Analysis (PCA) and Multi-Regression Analysis (MRTA), we adopted vital statistics of the people (Data 1) and satellite information covering the sea and the land as remote sensing data (Data 2). We are working on mathematical models for predicting the health of people living in these areas.