Granit

1) In most of cases with soft sediments over the basement, microtremors work very well. The principal characteristics can be explained with one dimension multiple reflection theory of SH waves. Maybe traffic and machinery noises as human activities excite Rayleigh waves and Love waves reflecting soil condition of surface layers. In this case, we can recognize the spectral peak of horizontal components as the predominant period of the ground. We are not sure whether those components are classified into Love waves or SH waves, but anyway they can be explained with a quarter wavelength theory of S-waves. This is Dr. Kanai's mirotremors, and at the same time Nakamura's method becomes available (Fig.14).

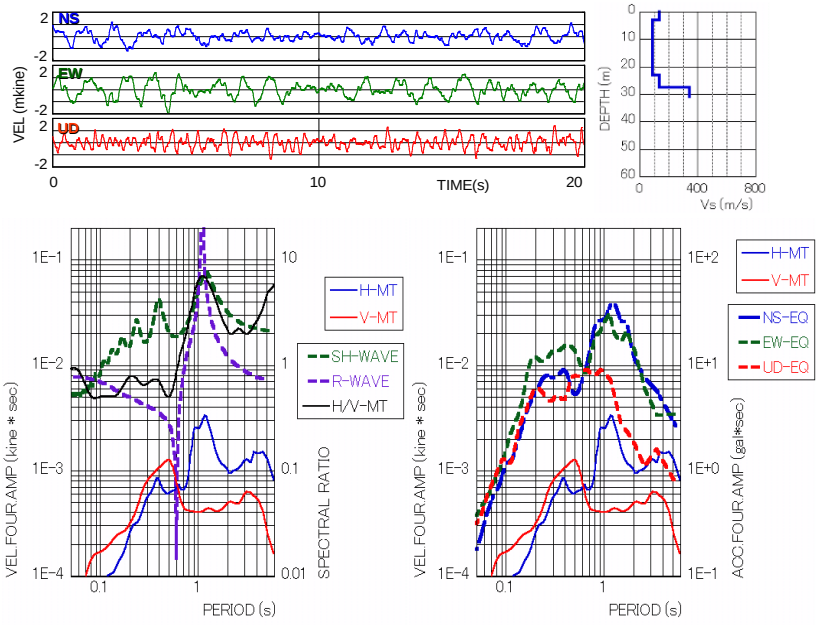

Fig.14 An example where microtremors worked very well as Dr. Kanai pointed out. Predominant period of microtremors fit with everything, such as SH-waves transfer function, H/V of theoretical Rayleigh waves, and seismic motions.

1) It is not so often but we can meet with the special case that microtremors consist of significant Rayleigh waves. We have not identified the necessary condition of this case yet, but the amount of traffics looked very heavy and the contrast between the upper layers and the basement was not so clear. In this case the horizontal component of microtremors do not have any specific peaks independent from the vertical component, although the predominant peak due to S wave appears during earthquakes. Then the characteristics of H/V spectral ratio fit very well with the theoretical H/V spectral ratio of Rayleigh waves as Dr. Tokimatsu has pointed out (Fig.15).

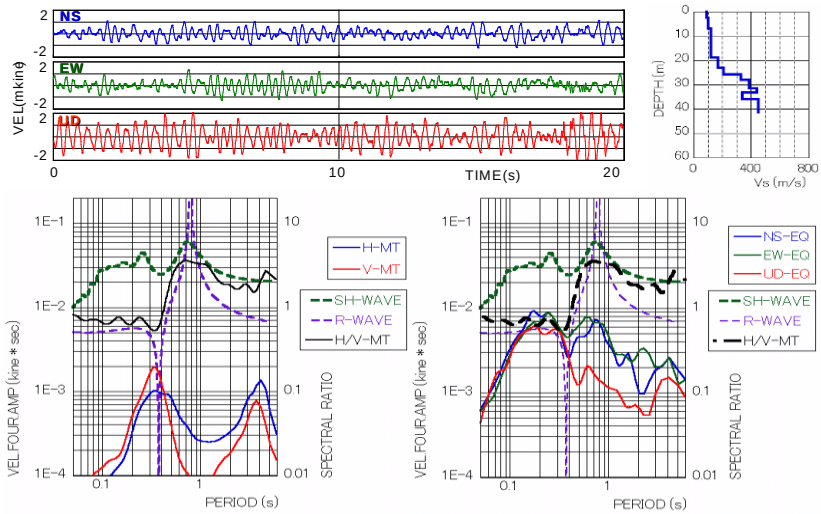

Fig.15 An example where microtremors consisted of very pure Rayleigh waves. Predominant peak did not appeared in horizontal component but it came out in H/V of microtremors. Horizontal component shows predominant period during earthquakes.

2) In most of the cases, amount of traffics is not the matter. Such traffics affect

Photo.1 High-sensitive sensor with 3 components for microtremors.

Photo.2 Microtremors measurements were made as closed as strong motion instrument.