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SSS024-P01

Room:Convention Hall

Time:May 27 14:00-16:30

Serial inland earthquake

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¹Japanese only

Japanese only

Keywords: inland earthquake, serial event, hypothesis 1,2,3,4

SSS024-P02

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The variation recorded by waveform images of the F-net at the 2007 Niigataken Chuetsu-oki EQ - 2: Hourly plot

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1. Preface

The F-net Broadband Seismograph Network, which is composed of around 100 STS-1 and -2 seismometers, is the network for monitoring earthquakes. Their records are open to the public through its homepage⁽¹⁾.

The homepage provides waveform images (daily plot) in addition to digital data of the waveforms. The purpose of the waveform images could be to help determination of period for waveform data, but they can also be data of seismicity. Because the daily plot is a GIF format image, and whose size (unit: KB, Kilo byte) relates to total length of the drawn lines, further relates to total amount of vibration of the ground where the seismometer is installed. The mathematical explanation of the so far mentioned is shown below, where the symbol => shall mean existence of relationship between the two in this document.

Size of F-net waveform image (KB, Kilo byte)

=> Total length of the drawn lines

=> Total amount of vibration of the ground

The size of the image is summation of drawn lines for specified period, thus it is different from waveform, which is an instant value. The elements which affect its size are amplitude (velocity), frequency and duration of vibration, and it seems that amplitude and duration of vibration affect the value very much.

2. Analyses

2.1 There are several analyses already conducted^{(2),(3)}.

2.2 2007 Niigataken Chetsu-oki Earthquake

<Method>

Same methods as those for the Daily plots.

<Results>

* Basically same pattern for the Daily plots are observed with the following exceptions.

* The hourly plots show quicker changes.

* Further the hourly plots contain spike noises.

* For the several days before the EQ, both patterns are different, i.e., the Daily plots show increase, while the Hourly plots do no show such changes.

Gratitude

The author thanks to National Research Institute for Earth Science and Disaster Prevention (NIED) for the use of F-net data.

References

(1) F-net home page <http://www.fnet.bosai.go.jp/top.php?LANG=en>.

(2) Yoshiki Sue 2010 Long-period vibration recorded by waveform images of the F-net Broadband Seismograph Network, Part 1 (In Japanese) SSJ Fall meeting abstract D31-12.

(3) Yoshiki Sue 2010 Long-period vibration recorded by waveform images of the F-net Broadband Seismograph Network, Part 2 (In Japanese) SSJ Fall meeting abstract P3-60.

Keywords: earthquake, F-net, Niigataken Chuetsu-oki

SSS024-P03

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Radon measurement in a cave by a household use radon monitor II

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An increase of the radon in underground water at Nishinomiya City 1) and an increase of the radon in atmosphere 2) at the southern part of Hyogo Prefecture earthquake in 1995 were reported. We have started to measure the radon in air by a low cost radon monitor for predicting the possibility of the earthquake. We used a Radon Monitor of SUN NUCLEAR Corporation, Model 1028, and 1029 as a radon monitor. This monitor is effective for the radon measurement at several tens Bq/m³ level though it is not so sensitive to be able to measure the daily change of the radon concentration at several Bq/m³ in the atmosphere. This monitor is possible the sequential measurement at every hour for over one month by 9V Li battery. However, there is possibility that the monitor will be broken because of humidity in caves. Then, we needed to measure radon in air with dehumidifying to 20~30% by a portable desiccator.

The calibration experiment has been done to examine the precision of this monitor at Ningyo-toge Environmental Engineering Center of Japan Atomic Energy Agency. Results, the 1st examination was initial radon concentration 1939±50Bq/m³, and 2nd examination was initial radon concentration 1918±33Bq/m³, were corresponding well. We had started to observe the radon in a cave of 56m in depth and 20m under ground in Okayama Prefecture as a place with higher level of radon concentration. We are continuously observing time variation of the radon in the cave over one year. Two tendencies where the radon concentration rose high after rainfall, and relatively higher in summer as seasonal variation, were obtained.

We start to observe the radon in atmosphere at our university in Okayama by a radon monitor of a PMT-TEL (Pylon Corporation). We will report time variations of the radon and ion in atmosphere, and their relationship.

References

1) G. Igarashi, T. Saeki, N. Takahata, Y. Sano, K. Sumikawa, S. Tasaka, Y. Sasaki, M. Takahashi: Groundwater radon anomaly before the Kobe earthquake, *Science*, 269, 60-61, 1995

2) Yasuoka, Y. and Shinogi, M.: Anomaly in atmospheric radon concentration: a possible precursor of the 1995 Kobe, Japan, earthquake. *Health Physics*, 72, 759-761, 1997

Keywords: radon, cave, earthquake, prediction