Japan Geoscience Union Meeting 2011
(May 22-27 2011 at Makuhari, Chiba, Japan)

U021-01 Room:304 Time:May 24 08:30-08:55

L'Aquila earthquake in 2009 and the international commission on operational earthquake forecast

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The L'Aquila earthquake of 6 April 2009, which has a moment magnitude of 6.3, struck central Italy near L'Aquila, killing over 300 people, injuring 1500 people, destroying about 20,000 buildings and made more than 65,000 people relocated. Following this disastrous event, Italian government decided to organize an international commission for earthquake forecast. Based on the report of the commission, foreshock activity, including felt events, began in January 2009, and local community was getting worrying about disastrous event. The 'earthquake prediction' was made public by a technician of local institution based on radon observation, which generated widespread public concern. DPC and INGV responded with statements that there is no scientifically validated method for earthquake prediction. DPC also convened a national commission for great risk to conclude "there is no reason to say that the sequence of events of low magnitude can be considered as a precursor diagnostic of a strong event." The disastrous main shock, however, occurred 10 days after the meeting.

The international commission was authorized with the statement of charge, to report on the current state of knowledge of short-term prediction and forecast of tectonic earthquakes, and to indicate guidelines for utilization of possible forerunners of large earthquakes. The commission made an executive summary and recommendations to report it to DPC on 2 October 2009. Detailed full-report is presented to DPC in 2010. The recommendation includes needs for probabilistic earthquake forecasting, importance of earthquake monitoring and research on earthquake predictability etc., and finalized with utilization of earthquake forecast and public communication. The probabilistic evaluations of earthquake are often criticized to be difficult to understand for the public, but they provide quantitative, and objective information on the present ability of earthquake forecast, which prevent over-expectation by the public to earthquake forecast or prediction. The full report will be submitted some academic journal soon.

Keywords: earthquake prediction, prediction information, recommendation, Italy

Japan Geoscience Union Meeting 2011
(May 22-27 2011 at Makuhari, Chiba, Japan)

U021-02 Room:304 Time:May 24 08:55-09:20

Information from Disaster Sciences as Risk and Crisis Management

Satoko Oki[1*], Kazuki Koketsu[1], Jiro Tomari[1], Eiji Kuwabara[1]

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For the previous 6 months from the L'Aquila earthquake which occurred on 6th April 2009, the seismicity in that region had been active. In the early March, a technician announced a short-term alert, which confused population in the region. Seismicity became even more active and reached to magnitude 4 earthquake on 30th March, the government held Commissione Grande Rischi (Major Risks Committee) which is tasked with forecasting possible risks by collating and analyzing data from a variety of sources and making preventative recommendations to Dipartimento della Protezione Civile (Civil Protection Department). After the press conference held by the committee, the press reported that one of the members explained the situation as favorable because there is an ongoing discharge of energy. 6 days later, a magnitude 6.3 earthquake attacked L'Aquila and killed 309 people. On 3rd June next year, the prosecutors opened the investigation after complaints of the victims that far more people would have fled their homes that night if there had been no reassurances of the Commissione Grande Rischi the previous week.

This issue became widely known to the seismological society especially after an email titled "Letter of Support for Italian Earthquake Scientists" from seismologists at the National Geophysics and Volcanology Institute (INGV) sent worldwide. It says that the L'Aquila Prosecutors office indicted of manslaughter the members of the Major Risks Committee and that the charges are for failing to provide a short term alarm to the population before the earthquake struck. It is true that there is no generalized method to predict earthquakes but failing the short term alarm is not the reason for the investigation of the scientists according to the article of ANSA. The chief prosecutor stated that "the committee could have provided the people with better advice", and "it wasn't the case that they did not receive any warnings, because there had been tremors". The email also requests sign-on support for the open letter to the president of Italy from Earth sciences colleagues from all over the world and collected more than 5000 signatures in a week. President of the Seismological Society of Japan (SSJ) encouraged all the members to sign up to the letter by sending an email on 14th June. Right after receiving the email, presenter mentioned the difference in the reason of indictment between the Open Letter and the article from ANSA by sending an email with translations to the representative of the SSJ and by giving phone call to the president. Summary of those information was presented at the Annual Meeting of SSJ in October 2010.

Parties concerned to this affair are the victims, researchers, and the policy makers. To learn what kind of information scientists should provide or how scientists communicate to the other two parties, it is of importance to listen to what they expected before and after the affair. In the presentation, we introduce what we should learn based on the interviews in Rome and L'Aquila.

Keywords: disaster information, risk management, crisis management, earthquake prediction, outreach, communication

Japan Geoscience Union Meeting 2011
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U021-03 Room:304 Time:May 24 09:20-09:40

Earthquake Information for Disaster mitigation, - Roles and operation schemes of Japan Meteorological Agency -

Jun Funasaki[1*], Masaki Nakamura[1], Yohei Hasegawa[1], Takashi Yokota[1]

[1]Japan Meteorological Agency

1) Introduction

Japan Meteorological Agency (JMA) issues information to prevent and mitigate natural disasters, for safety of transportation, development and prosperity of industry, improvement of public welfare.

JMA provides earthquake information, which contains predictable information as follows.

(1) Information on the anticipated Tokai Earthquake.

(2) Earthquake information containing expectation of maximum intensity, maximum magnitude and duration of activity, for the swarm in the east part of Izu (preparing).

(3) Earthquake Early Warnings.

The information is transmitted to related organizations by JMA. Moreover, the news organizations broadcast the information.

It is insufficient only to establish the theory and the technique. We have the entire system including follows.

(1)JMA can issue the alert and the science-based information anytime 24 hours a day.

(2) JMA ensures transmission of the information.

(3)The receiver can surely understand the information and can behave in an appropriate manner, after JMA makes efforts to conduct public relations activities.

2) JMAs obligation to the Tokai Earthquake prediction and the strategy

The Tokai Earthquake is expected to occur in the near future along the trench near Suruga Bay. The mechanism of Tokai Earthquake is well understood, and observation of a pre-seismic slip is expected just before the Tokai Earthquake itself. JMA has observation systems in place to detect the pre-seismic slip.

Director-General of JMA is responsible for reporting Earthquake Prediction Information concerning the anticipated Tokai Earthquake to Prime Minister of Japan.

If any anomalous phenomena are considered to be precursors of the Tokai Earthquake, JMA will convene the Earthquake Assessment Committee for Areas under Intensified Measures against Earthquake Disaster.

If the Committee concludes that the Tokai Earthquake is imminent, the Director-General of JMA will report the conclusion to the Prime Minister, who will hold a Cabinet meeting and issue a Warning Statement. Central government, individual local governments and relevant authorities take measures according to prevention plans. The disaster prevention correspondence and measures is provided by the law.

3) Forcast for the swarm in the east part of Izu

An earthquake prediction method has not been established now. However, the forecast of a few cases of the swarm activity seems to be possible.

JMA targeted the swarm activity in the east part of Izu. JMA is conferring on correspondence where the citizens should adopt the content, the method of the giving information, with a related organization, so as not to cause damage in the travel industry.

JMA plans to advance announcing to the correspondence that should be taken to the civilian after correspondence to information is decided.

This prediction method is the one based on the feature of past seismic activities, when the seismic activity is different from the past one, the forecast might not correspond to the reality. JMA advances well-known and announcing to the citizens about the limit of such cases.

Keywords: Prediction, Prevention, Disaster, Tokai, Izu

Japan Geoscience Union Meeting 2011
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U021-04 Room:304 Time:May 24 09:40-09:55

Why did Prof. Oomori say that Tokyo big earthquakes would never happen?

Jiro Tomari[1*]

[1]ERI

In 1923, the great Kanto earthquake happened and about one hundred thousand people lost their life in Tokyo. Before the earthquake, Prof. Husakichi Oomori repeatedly said that Tokyo big earthquakes would never happen for some time. I would like to discuss why he said such things.

Keywords: the great Kanto earthquake, Husakichi Oomori

Japan Geoscience Union Meeting 2011
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U021-05 Room:304 Time:May 24 09:55-10:15

Lessons learned from the career of Prof. A. Imamura for the earthquake disaster prevention

Masayuki Takemura[1*]

[1]Kobori Reserch Complex INC.

Prof. A. Imamura (1970-1948) is one of the famous Japanese seismologists. He experienced the 1923 Great Kanto earthquake. As a memory of the tenth anniversary, he left a paper in the Journal of Seismological Society of Japan ”ZISIN” in 1933. The title is ”Retrospection of Great Kanto Earthquake”. We reviewed this paper and discussed about social activities of seismologists for the sake of the earthquake disaster prevention on the lessons learned from his career.

Keywords: A. Imamura, Great Kanto Earthquake, ZISIN

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U021-06 Room:304 Time:May 24 10:45-11:05

An Instance correspond to the 2000 Tottori-ken Seibu Earthquake

Ryohei Nishida[1*]

[1]Tottori Learning Center of the OUJ

Large earthquake (M7.3) occurs 10 km depth in a west mountainous region of Tottori prefecture on 6 October, at 13:30. Strong tremor struck at Sakaiminato city and Hino town, and Seismic intensity of 6 Upper were recorded. Tottori Prefecture Governor established immediately in Tottori prefectural disaster countermeasures headquarters. He takes the meeting to discuss. And I am called measures room at about 4: 00 in the attendance of a Conference as an observer. The countermeasures headquarters was opened to the public by the parsons concerned in the mass media. Earthquake Information in connection with the biggest aftershock is transmitted from Japan Meteorological Agency. It warns to be a high possibility that the biggest aftershock will be occurred within 2 or 3 days. I was requested an explanation of the Earthquake Information from Governor. The answer was that the biggest aftershock will be occurred near Yonago city where is densely populated. If it is the occurrence of the aftershock, the seismic intensity in Yonago city is more than 5. And it is expected to suffer big damage on Yonago city. The reasons are as follows, the high seismic activity in this area is continued for 11 years. It is considered that those seismic activities occurred in same fault system. The direction of the fault is NWW-SEE. The seismic activities migrated from SE to NW. A biggest aftershock occurs at the edge of fault probably, and this point is 10km depth near Yonago city. Governor took with members to work out countermeasures by my explanation, and carried out many orders. The scene of the anti-disaster headquarters, the seismologist who can be a proper understanding of occurring succeed stages, must give an account of seismic activity.

The conditions are as follows.

(1) To exist a relationship of mutual trust between the seismologist and the mass media, the administrative organ, inhabitants.
(2) Studying and observing the local seismic activity in this area.
(3) To be well informed about local Information. (For example, no mistakes to call names of local places)
(4) To have the opinion to a phenomenon in this area.
(5) To be need to take a broad view of the situation to seismic activity.

Keywords: Seismic Information, Prefectural disaster countermeasures headquarters, Seismic Activity

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U021-07 Room:304 Time:May 24 11:05-11:25

Cooperation with disaster prevention organization in operation of Eruption Alert Level

Hitoshi Yamasato[1*]

[1]JMA

Japan Meteorological Agency (JMA) is operating ”Eruption Alert Level” linked the action to be taken for volcanic unrests. Setting and operation of the level is based on volcanic activity scenario and hazard map, and the level has linkage to the disaster prevention plan of the local governments. For each volcano, the core group composed of local governments, sabo sections, volcanologists and JMA plays an important role in the development and operation of the disaster prevention plan. For volcanic crisis, they are to lead the disaster management headquarters as an important member in promotion of the disaster countermeasures.

At the eruption of Shinmoedake, Kirishimayama, JMA updated and changed the level for advising the countermeasure of the local government. In the presentation, I will introduce some problems in the activity.

Keywords: volcanic disaster prevention, eruption alert level, Japan Meteorological Agency

Japan Geoscience Union Meeting 2011
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U021-08 Room:304 Time:May 24 11:25-11:45

MAGMATIC FLUID SUPPLY INTO LAKES NYOS AND MONOUN, AND MITIGATION OF NATURAL DISASTERS

Takeshi Ohba[1*], Minoru Kusakabe[2], Akira Ueda[2], Maki Tsujimura[3], Tomofumi Kozono[4], Mie Ichihara[5], Yujiro Suzuki[5], Kazuto Saiki[6], Katsuya Kaneko[7], Yasuo Miyabuchi[8], Tetsuo Kobayashi[9], Katsuro Anazawa[5], Toshihiko Sugai[5], Yutaka Yoshida[10], Akihiko Terada[11], Miyuki Yoshikawa[12], Tetsuya Yokoyama[11], J. V. Hell[13], Luc Sigha[13], Greg Tanyileke[13], Issa[13], Fantong Wilson[13], F. T. Aka[13]

[1]Tokai University, [2]Toyama University, [3]University of Tsukuba, [4]National Research Institute for Disaster, [5]University of Tokyo, [6]Osaka University, [7]Kyoto University, [8]Kumamoto University, [9]Kagoshima University, [10]Yoshida Consulting Engineer Office, [11]Tokyo Institute of Technology, [12]Aso Volcano Museum, [13]IRGM Cameroon

In 1980s, the gas disasters at Lakes Nyos and Monoun killed 1800 of residents. The lakes are located in the northwestern region of Cameroon. The cause of the death was the atmospheric oxygen shortage due to the high concentration of CO2 in air. The CO2 was explosively discharged at the lakes. The discharge of CO2 was termed as "limnic eruption". Before the discharge, CO2 was dissolved in the deep lake water. If we compare the lake water with magma, and, CO2 gas with volatile in magma, the analogy between limnic and magmatic eruptions is recognized.

The accumulation of CO2 continues even after the limnic eruption, because the supply of CO2 into the lake cannot be stopped. The CO2 is expected to be carried by a thermal water discharged at the bottom of lakes. In order to secure the lakes, degassing pipes have been installed at the both lakes supported by the Nyos-Monoun Degassing Project (NMDP). Japan, Cameroon, USA and France have been involved in NMDP. In 2011, the most of CO2 in the water of Lake Monoun has been removed by the degassing pipes. The removal of CO2 in the water of Lake Nyos is still insufficient. About 70% of CO2 is left in the lake water relative to the maximum amount observed just after the limnic eruption in 1986. New degassing pipes will be installed additionally at Lake Nyos in this year. The life span of degassing magma is much longer than that of our human. The supply of CO2 to the lakes is expected to last long. Moreover the supply rate of CO2 might increase in future. Considering the above situation, the residence around the lake has been prohibited.

Because the limnic eruption is the degassing of CO2 and the concentration of CO2 in lake water is measurable, the prediction of linmic eruption is not impossible. Scientific researches and observation of lakes would provide the information necessary for Cameroonian government to declare the safety of lakes. We have initiated a project along the framework of SATREPS (Science and Technology Research Partnership for Sustainable Development) funded by JST and JICA. In the project, the following researches will be carried out under the cooperation between Japanese researchers and researchers in IRGM (Institute for Geological and Mining Research): 1) The mechanism of limnic eruption, 2) CO2 distribution in lake water, soil and ambient air, 3) Flow of ground water around the lakes, 4) Interaction between CO2 and country rock, 5) Real time monitoring of lake water, 6) Active removal of CO2 dissolved in deep lake water, 7), Eruptive history of lakes, 8) Geochemistry of lakes and volcanoes along Cameroon volcanic line. The project encourages that the result obtained in the above researches is efficiently transferred to administrative agency.

A governmental declaration of lake security should be given considering the scientific results obtained by the cooperative researches. The declaration brings the re-habitation around the lakes and develops the area. Even after the declaration, a sustainable monitoring and researches on the lakes is necessary. For the observation and research, capable young researchers are required. In this project, the capacity building of young Cameroonian researchers and the donation of scientific instruments are included, which are indispensable for the cooperation with developing countries.

Keywords: limnic eruption, CO2, crater lake, disaster prevention

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The center for volcano disaster prevention education on Fuji volcano hazard - attempt of FVDPIC, YIES

Takashi Uchiyama[1*], Eisuke Fujita[2], Tomofumi Kozono[2], Satoshi Koshimizu[1]

[1]YIES, [2]NIED

Dissemination of information about potential volcanic hazards is important for the public, as standing point to deepen their understanding on the volcanic hazard, and to advance the volcano disaster prevention measures. Especially, when Fuji volcano erupts by any chance, the influence extends it to not only the population in the surrounding but also the general public, therefore the volcanic hazard map was made centering on the Cabinet Office, it continued to it, and the evacuation map and booklet were made by the local disaster prevention conference.

An essential prerequisite for the mitigation of volcanic risk at Fuji and any volcano is to gain its history of eruptive activity and associated hazardous processes. And a vital element of effective risk reduction is for the population at large to gain an adequate understanding of the current status of Fuji Volcano. Accordingly, "Fuji Volcano Disaster Prevention Information Center (FVDPIC)" is attached to Yamanashi Institute of Environmental Sciences (YIES).

As for the volcanic activity monitoring system of Mt. Fuji, YIES sets up the low frequency seismograph etc. in the Oshino village, and the system that was transmitted to NIED by the lease line. And then, seismic wave data analyzed with the observational data of NIED, and fed back to YIES.

Meanwhile, it is thought that it is important to learn the volcanic phenomena for the reduction of volcanic hazard, assumes the case where the lava flow are erupted from Mt. Fuji, the virtual lava flow simulation is preformed.

To advance the spread enlightenment of the volcanic hazard and risk education on Fuji volcano, the system of FVDPIC is maintained to send essential information concerning Mt. Fuji including the volcano knowledge and monitoring information. It is scheduled to be informed by the illustrated talks and animation, and to open it to the general public, who visited the center of environmental education in YIES because the well-informed populace is more likely to promote support for the geological studies, monitoring activities, and efforts at control. It attaches and it reports on the approach.

Keywords: Mount Fuji, volcanic hazard prevention, volcanic risk mitigataion, risk education, monitoring, yamanashi

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U021-10 Room:304 Time:May 24 12:00-12:15

Troubles of the JMA Volcanic Warnig and Volcanic Alert Levels

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Troubles of the JMA Volcanic Warnig and Volcanic Alert Levels

Keywords: JMA, Volcanic Warnig, Volcanic Alert Levels

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U021-11 Room:304 Time:May 24 12:15-12:35

Verification study of validity of hazard information for seismic and volcanic disasters in Japan: present status

Masato Koyama[1*], Shin Murakoshi[1], Toshiko Kikkawa[2]

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The Japan Meteorological Agency recently introduced many kinds of hazard information systems, such as Earthquake Early Warnings, Predictive information for the Tokai Earthquake, and Volcanic Alert levels. Moreover, many hazard maps of active volcanoes were published by local government offices. The validity of these information systems has, however, seldom been verified critically by national and local government offices themselves. We review recent verification studies of the validity of the hazard information systems for seismic and volcanic disasters in Japan from the viewpoint of risk communication between authorities and citizens.

Keywords: earthquake, volcanic eruption, hazard information, risk communication, verification, status

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U021-12 Room:304 Time:May 24 14:15-14:30

Interview and questionnaire surveys of The Headquarters for Earthquake Research Promotion's outcomes

Rai Okabe[1*], Hiroyuki Tomida[1], masafumi Sato[1]

[1]MEXT

The Headquarters for Earthquake Research Promotion (HERP) promotes the research of earthquakes with accurate understanding of the needs for disaster prevention of citizens and local governments.

HERP has been making efforts to explain the purpose of earthquake research comprehensively, to spread the correct understanding of earthquakes and to announce the outcomes identified by HERP to society.

The progress of earthquake research in Japan has been remarkable in recent years. In tandem with the increase in the knowledge of earthquakes, the needs of society have also changed.

In order to comprehend the trend of said needs, HERP organized an interview survey for officers of local governments and specialists in engineering and fields of social sciences (architecture, nuclear power plant, bridgework, city planning), and made a questionnaire survey for citizens.

Through the analysis of these surveys, success cases and problems of utilizing the outcomes identified by HERP were revealed.

The aim of this presentation is to present these results and the solutions of the problems.

Keywords: The Headquarters for Earthquake Research Promotion, interview survey, questionnaire survey, National Seismic Hazard Maps for Japan

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U021-13 Room:304 Time:May 24 14:30-14:50

Expectations for the Practical Application of Predictions of Earthquake and Volcanic Eruption

Takayoshi Iwata[1*]

[1]Emergency Management, Shizuoka Pref. Gov

Shizuoka Prefecture has worked on earthquake preparedness measures as a high-priority issue since 1976, when the so-called Tokai earthquake was announced to hit the area. The Tokai earthquake is predicted to be a large-scale earthquake and to occur right under the Shizuoka Prefecture region. Almost whole area of Shizuoka Prefecture is expected to experience severe ground shaking ranging from an upper 6 to 7 on the Japanese seismic scale of intensity. In addition, a tsunami will hit along the coasts of Suruga Bay and Enshu Sea within several minutes after the occurrence of the earthquake.

Shizuoka Prefecture has worked on various earthquake preparedness measures to mitigate the expected damage, such as the earthquake-proofing of buildings and the maintenance and creation of facilities to protect against tsunami. Moreover, we have implemented disaster prevention education and fostered voluntary organizations for disaster prevention to secure disaster control in the region.

9,000 people will likely be killed if the Tokai earthquake hits the area without warning. In order to reduce the number of casualties, it is necessary to have an earthquake prediction system. In order to make the Tokai earthquake prediction system, the Large-scale Earthquake Countermeasures Act was enacted in 1978. A warning declaration will be announced by the Prime Minister when a precursor of the Tokai earthquake is observed. When the warning declaration is announced, social activities will be limited including the operation of railways, and an evacuation order will be announced to residents in the regions where tsunami or landslides are expected to occur. By taking such precautions beforehand, not only will human lives be saved, but the extent of damage can be limited. Thus, information from the scientifically-based Tokai earthquake prediction system has been used for a system of disaster prevention activities throughout the community.

In regards to volcanic eruption prediction information, the Meteorological Agency introduced an eruption alert level in 2007. Since then the Meteorological Agency has announced eruption warnings, including evacuation notices for residents, as well as to provide information related to the scale of previous volcanic activity.

Thus, the information related to prediction of large-scale earthquake and volcanic eruption (currently limited to the Tokai earthquake and 26 volcanoes) is being utilized in the formation of a public disaster prevention information system. If observational data and scientific knowledge concerning earthquake and volcanic activity are much more accumulated, real-time analysis and predictions of them will become possible. Then, people can expect more accurate disaster prevention information, which will reduce the damage caused by the earthquake and volcanic eruption. To meet these expectations, it is necessary to establish a relationship of trust between scientists and citizens.

I will discuss citizen's awareness of earthquake and volcano prediction information, the social system that utilizes the same information, and the related expectations towards such research.

Keywords: Earthquake prediction, Volcanic eruption prediction, Disaster prevention information

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U021-14 Room:304 Time:May 24 14:50-15:10

Current status and challenges for the future in broadcasting disaster-prevention information in television news

Atsushi Oketa[1*]

[1]TBS NEWS

In the event of natural disasters such as earthquakes, tsunami, volcanic hazards, and typhoons that could claim many lives of people and assets, all media across Japan, particularly, the television, broadcast the news. The majority of information, however, is on damages, and confirmation of what happened there. In fact, mobilizing reporting teams and transmitting the information from the disaster area to the nation is an effective way to raise public awareness. But, when I think about today's theme, I don't think the television news, particularly the key stations of news networks, are fulfilling their missions. The year of 2010 was a turning point in reviewing media's roles in earthquakes, volcanic hazards, and other disasters. Concerning earthquake, looking at Japan alone, it was the 15th anniversary for the Great Hanshin-Awaji Earthquake, and 50th anniversary for the Chili Earthquake. As for volcanic disasters, 2010 was the 10th anniversary for the eruption of Miyake-jima Island. In Hokkaido, it's been ten years since Mt. Usu was erupted in 2000. To disseminate information for disaster prevention rather than disaster information, and to inform the latest scientific technology for disaster prevention, it should have been significant for us to produce special program or broadcast feature stories in our news programs for such purposes. Unfortunately, we hardly launched such projects last year.

What's happening behind all this? I believe public interests are one of the external factors. People are more interested in uncertainties about the future, such as economic trend, pension plan, and social security services. (Sources: Survey on awareness of disaster information by CIDIR, Tokyo University, 2010) Television tends to broadcast what the viewers are more interested, and they are relatively less motivated and less opportunities to produce program that would contribute disaster prevention. There is also an internal factor that has been pointed out for some time. News departments of commercial broadcasters have not yet established the system to cover the disaster. Most of the commercial broadcasters do not have science news section, and only have limited opportunities to train science reporters systematically. TBS-TV, which I work for, organized science news section on the outbreak of new influenza virus H1N1 last year. But those science reporters have other duties as well, and the quality of the science news depends on efforts of those individuals who are also busy with their routine works. I believe media need to cooperate with researchers and research institutions to create opportunities to train those science news reporters.

Digitalization of terrestrial broadcasting will be completed in July, 2011. The technological development in broadcasting as such obviously will bring changes to environment surrounding broadcast of disaster information. In fact, experiments to use television as a multimedia-platform in transmitting disaster information are underway. In the event of disasters, the information will be transmitted not only on terrestrial broadcast, but also on the Internet, social networking services such as Twitter, One-Seg and other types of broadcastings on mobile devices. On terrestrial broadcasting, two-wave simultaneous broadcast is under study. Under that system, one wave transmits disaster information, and the other wave transmits the information affecting livings of people in disaster-hit area with radio, or on radio simultaneously.

There is certainly a limit on broadcasting disaster-prevention information on television. Yet, television is still a powerful media, and expected to play an significant role on such occasions. In my presentation, I would discuss current status and challenges for the future introducing latest cases on our broadcasting and specific future plans.

Keywords: disaster information, disaster-preventation information, TV coverage, science program, multi-media platform

Japan Geoscience Union Meeting 2011
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U021-15 Room:304 Time:May 24 15:10-15:30

The responsibilities of information recipient?Information and Intelligence

Eiji Kuwabara[1*]

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The human's awe of nature, emerges when nature indicates no humane meaning or intend at all, and is laying bare by itself. On the other hand, the leakage of the diplomatic cable via WikiLeaks, was a circumstance that debacles the tacit agreement which nation and information used to have. The 'information' which was veiled by human intent, revealed its true nature.

When considering the way of the information should be by natural disaster, it is always necessary to get back to the 2 fundmental premises.

1. What is an information for humans?
2. How do people consider natural disaster?

What is often forgotten in premise 1, is the way of information for the nformation recipient. ' The information of natural disaster has long been only discussed from the side of 'transmitter of the information'. It could be considered that it is because the information has always been handled with the 'intention' of preventing the disaster. The investigation by prosecutor of the L'Aquila earthquake, can be said as an approach to its blind spot from the legal liability point of view.

Amongst the information, referred in the occasion of natural disaster, the information sent out from the nature itself will be the primary information. In the case of L'Aquila, the small earthquake swarms corresponds to this primary information. The disaster prevention information via human, is nothing but a secondary information. Natural disaster information is an 'actual information' on nature, and the disaster prevention information may be characterized as an 'intended information with certain aim'. But the same kind of problem will keep arising, as long as we continue misidentifying that natural disaster information and disaster prevention information are the same. Many of the media reported that the 'earthquake prediction had failed', but that is not the point. A biased way of seeing everything from the earthquake prediction point of view may create a distortion of information in double. Natural disaster information should be distinct.

Information can not stand on its own without recipient. However, the disaster information theory have been only discussed according to the perspective of 'how the information can move the mass', which is namely, 'effectiveness of information' from the information transmitter point of view. This brings up the importance of the direction information into discussion. But as long as the individuals tries to seek not only 'effectiveness', but also 'meaning.',

Concerning premise 2, It is often said that the behavior of Japanese people toward natural disaster is 'resignation'. The Ryokan's letter to his friend, saying 'how bitter it is to survive and not being able to die. But one should be caught in disaster when in disaster, and one should die when one should die. This is the best way to avoid disaster.'

It is not a superficial 'resignation', but a revealing'. It is a behavior of taking in the nature as it is. This is Japanese's philosophy of nature. This is something antithetical to the 'forcible humanism'. The folklore: 'Don't care about the others by Tsunami.' is also one of them. It could be named as the disaster control in the mind, which refuses to face the unavoidable death. Death is consciously or not, always in the bottom of information recipient when facing the natural disaster. And the death should be something 'convincing' when facing damning condition.

The starting point of disaster control should be nothing but the concept of 'triage'. It starts from creating a social consensus by making clear; the choice and ordering of 'what to protect', 'what could be protected' and 'which to protect'. It is taken for granted that 'life and property' are placed side by side to be protected from disaster, but humans don't have any force to protect everything. The Ryokan's letter may be considered that he had seen through this reality.After all, no one else can bear the information, other than the recipient himself.

Keywords: outreach, disaster science

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U021-16 Room:304 Time:May 24 15:30-15:45

Science Cafe for introduce of Scientific Uncertainty

Miwa Kuri[1*], Yuko Murakami[1], Koji Tachibana[2]

[1]Science, Tohoku University, [2]Knowledge Science, JAIST

[introduction]
This science cafe program is a part of the project of ”Legal Decision-making under Scientific Uncertainty”.

[background]
In the age of science and technology (S&T), conflict concerning S&T is increasing. Such a conflict is sometimes brought into a court. However, there are several difficulties in dealing with these conflicts in courts presently, because of the lack of collaborative relationship between the two fields of specialists, lawyers and scientists. This project aims at clarification of the difficulty in the collaborative relationship and at developing a system to deal with scientific cases more effectively and fairly, especially in the case where scientific uncertainly is crucial.

[science cafe]
The first theme is ”Philosophy cafe for law and science; confliction of rationality”. Mr. Kamemoto introduced the logic on the law, and Murakami did that on the science. The second theme will be ”Social Decision-making under Scientific Uncertainty”. We will focus on the view from the living civilian. We will pick up the natural disaster as topics.

Keywords: Scientific Uncertainty, Science Cafe

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How can we accommodate uncertainty of natural events?; natural science and disaster reduction

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It needs long time for disaster reduction efforts against mega disaster such as Tokai, To-Nankai, and Nankai earthquake. National government tells probability of To-Nankai, Nankai earthquake within 30 years. It says that To-Nankai would hit Japan with 70% possibility and Nankai with 60%.Chart of cumulative probability is used to explain the probability to show the probability in each year. If the probability density function chart is used, we can distinguish the most probable year of the event. For effective disaster reduction management, we should make strategic disaster reduction plan which contains the strategic time line, goals, and operation procedure. From planning view points, the most probabilistic time of the event is preferable even though that information has problems from natural scientific perspective. This paper discusses about how uncertainty of scientific analysis were accommodated in disaster reduction planning from experiences for disaster reduction planning of Kochi city, which suffers from long term flooding for ground subsidence induced from prate movements.

Multi-lateral collaborative research among seismologists, engineers, planners, and practitioners were conducted for disaster reduction planning for Kochi city against Nankai-earthquake. Used techniques for each researcher were not advanced one, but compiling knowledge of various background researchers, unique results about damage and loss from Nankai earthquake were acquired. 2,500 people lives in long term flooding area, and flooding continues for at least one month, as a results 2,500 people would suffers from long term evacuation, and 10,000 interim housing are necessary. Based on those social impacts analysis, contents of post-events countermeasures were also clarified.

Scientific research is usually motivated by inquisitive of individual researchers. However, researches on natural disasters are asked to get useful results for disaster reduction. And natural scientists say eliminating uncertainty of natural phenomena or high accuracy of analysis would work for disaster reduction countermeasures, though requests from practitioners are not clarified. If the scientific research results would really be useful for disaster reduction, goal of disaster reduction research should be set by disaster reduction practitioner. However it would be different from natural scientific research motivation. Uncertainty of research results were accommodated through discussion among researchers in Kochi experience. Collaboration of researchers with advance research results in each field could work to managing uncertainty of research results in specific field. Not working in individual field but multi-lateral collaboration would work to get fruitful results for disaster reduction with securing research interests of each scientific field.

Keywords: Tokai, Tonankai, Nankai Earthquake, Kochi City, Ground Subsidance