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

MTT034-01 Room:102 Time:May 24 16:30-16:45

Practice of geography education using weblog

Kuniyasu Mokudai[1]*

[1]Pro-Natura Foundation, Japan

The use of social media in education of geography at the university is effective. Students was made to write the book review in blog. This mechanism makes not only the evaluation by the teacher but also the evaluation of the student each other.

Keywords: blog, physical geography, Eoducation of Geography, Book Review

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Archaeo-GIS Workshop's USTREAM "TOMOBIKI Night!!" at the Dawn of Academic Social Media

Takayuki Ako[1*], Yasuhisa Kondo[2]

[1]Centennial Hall, Tokyo Tech, [2]University Museum, University of Tokyo

In 2010, the social media, represented by USTREAM and Twitter, became rapidly widespread and created new social relationship between people. It can be called as the dawn of the new social network. The social media gradually penetrate even the world of scientific research, and then establish multidisciplinary intercommunion and also broader academic communication involving citizens. In this paper, the authors discuss the potential of academic social media, with presenting the case study of Archaeo-GIS Workshop's USTREAM *TOMOBIKI Night!!*

Although *TOMOBIKI Night!!* started broadcasting in May 2010, it has five-year protohistory. Since ca. 2005, researchers who are interested in practical applications of GIS to archaeology have increasingly expressed their research interests and ideas using their weblogs. These activities has then gradually formed network of researchers and resulted in the establishment of Archaeo-GIS Workshop as a multi-institutional community for archaeologists and GIS analysts in 2007. This workshop aims at acting as an academic agora in which participants discuss and share their failure stories and know-hows of GIS as an analytical tool. Towards this purpose, a series of workshops, such as field tutorial of GPS operation and hands-on seminar of GIS processing, have been held to learn the latest geospatial technologies as well as its more effective applications to archaeology. In the course of these activities, two members in Tokyo projected a USTREAM broadcasting in order to enhance academic interexchange and deepen understandings of archaeological GIS. The characteristics of the program is summarized as below:

Program name: TOMOBIKI Night!!
URL: http://www.ustream.tv/channel/ta-niiyan-s-show
Anchors: Takayuki Ako (@ta_niiyan) and Yasuhisa Kondo (@yaskondo)
Day: Every other tomobiki day (once in twelve days)
Hours: Approximately an hour in the evening
Typical contents: Interviewing guests, latest news, main topic of the day, introduction to apps and tools, and upcoming events

The program has been broadcasted for twelve times by January 2011 (see also List 1). During video streaming, the anchors always communicate with viewing audience through Twitter embedded to USTREAM to deepen the discussion. Furthermore, since the recorded video clips can be reviewed to continue discussions after broadcasting. The comments and associated tweets are automatically hush-tagged and manually summarized by an add-in service.

Interestingly enough, the experience of *TOMOBIKI Night!!* has revealed that USTREAM is useful not only for the formation of academic networking but also for discoveries of ideas and issues. In the authors' view, this is significance and potential of academic social media, which will play important role in scientific research from now on.

List 1
#000 (2010.5.13) Trial broadcast: Installation of Quantum GIS and GRASS (hands-on)
#001 (7.4) Guest: Miya-san; rokuyo (six-day calendar system); iPad and archaeology
#002 (7.26) OURS report (photogrammetry and historical GIS); FileMaker Go
#003 (8.7) Open Street Map; Harris Matrix; TexTra app
#004 (8.23) Guests: Ueni and Kanae; personal library management; GPS Babel
#005 (9.8) GOOD DESIGN EXPO; geospatial EXPO; GISA 2010; the latest issue of GIS NEXT; VoiceTra
#006 (10.13) JSAI symposium, excavation and information management ; Tokyo Chrono-Stratigraphic Map (Tokyo Jiso Chizu)
#007 (10.25) Swords of Todaiji Temple; GISA and GeoNomi reports; Omni Graffle
#008 (11.10) CSIS DAYS 2010 preview; GeoClino, talk on the TITECH exhibition; Nabunken's exhibition on geospatial information
#009 (11.22) Archaeology and FOSS4G; MAP BAR; iPad and museum collection management

#010 (12.9) Guest: Prof. Oguchi (@ogugeo); geoarchaeology in West Asia
#011 (2011.1.6) New year greetings; talk on AR.Drone; talk on fashionable bicycles; JoRAS program of CSIS
#012 (1.18) demonstration of AR.Drone repaiement; report of WiMAX; plan of field research in Oman

Keywords: Academic Social Media, USTREAM, Twitter, Archaeology, GIS

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Use of social media in the IUGONET project

Yukinobu Koyama[1*], Daiki Yoshida[1], Hiroo Hayashi[2], Atsuki Shinbori[2], Tomoaki Hori[3], Shuji Abe[4], Takahisa Kono[3], Naoki Kaneda[5], Yoshimasa Tanaka[6], Satoru UeNo[5], Masato Kagitani[7], Hiroyasu Tadokoro[6]

[1]Graduate School of Science, Kyoto Univ., [2]RISH, Kyoto Univ., [3]STEL, Nagoya Univ., [4]SERC, Kyushu Univ., [5]Kwasan & Hida Obs., Kyoto Univ., [6]National Institute of Polar Research, [7]PPARC, Tohoku Univ.

The Inter-university Upper atmosphere Global Observation NETwork (IUGONET) is a six-year research project by 5 national institutes/universities to build a metadata database of ground-based observations of the upper atmosphere. From the beginning of the project, we have been operating mailing list, wiki, video conference system and web conference system to discuss project management and geoscience research. Recently, we are paying attention to the social media as one of the channels to discuss the geoscience research.

In this presentation, we introduce the case example of the collaboration between the IUGONET project and social media.

Keywords: Upper Atmospheric Research, Social Media, Metadata, Database

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Experimental attempts of using the Wiki-based cooperation support system

Takanobu Sawagaki[1*]

[1]Hokkaido University

I will introduce my experiences to manage some wiki-based cooperating systems. Example-1) A web-based knowledge sharing system was experimentally developed on the LAN using the INTERSAT communication system, at Syowa Station during the wintering period of the 47th Japanese Antarctic Research Expedition. The system works on wiki, which is a collaborative technology for organizing information on web sites. Wiki allows users to catch up on information produced by various activities at the station to date, linking and tracing among a large number of pages. A number of wiki systems have been developed under the GNU General Public License. JARE47 experimentally introduced a PukiWiki system in which all data are stored in hypertext format, and binary files can be attached to any pages. PukiWiki is able to extend its functions by using plug-ins, which allow users to modify the system. The wiki at Syowa Station was started on a small scale and expanded to permit storage of data entered by individual members, and to permit sharing of information up to date among all members, becoming a portal site for wintering members. During the complicated operations in summer season when many groups pursued the individual field activities, wiki played an important role for reconfirming and modifying procedures among members, as the key station around the Syowa area. Example-2) The Hokkaido Blanch of the Japanese Society of Snow and Ice has estavlished a ”snow and ice disaster research team” to investigate in an expeditious way since 2007. The activity of the team is supported and under cover of an IT-based information system in many scenes, such as collection and exchange of information on disasters and hazards, as a commanding channel between the field and the head office, editing the field reports or press release statements.

Keywords: Wiki, Antarctic Research Expedition, Snow and Ice Hazard, Web Site

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Fieldnet: Trial of the network for Fieldworker and Field Science

Wakana Shiino[1*]

[1]ILCAA,Tokyo Univ. of Foreign Studies

Fieldnet is the network for researchers have unbounded spirit of inquiry based on field work to exchange useful information, promote cooperative research between different fields. There is the potential to create a collaborative network. We have tried to create a website for the construction of useful local information for Fieldworkers, and we aim to exchange and collaboration among people through workshops and meeting.

First of all, we have started to use Mediawiki to construct information, but the communication has not been very active in the site. That’s why we repair the website from April to focus on a social networking website. I can say with confidence, eventhough the system on the web will be improved in the future,can not be better than to see and discuss each other face to face. Online and offline activity is important for both sides. In this presentation, I would like to show our past activities and to show the process and get the discussion of future challenges.

Keywords: online/ offline, SNS, Fieldwork, Share of Fieldsite,Research Topics

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Research and development of social-wear system that contributes to improvement of disaster prevention ability for local

Okada Shinya[1*]

[1]NIED

Research and development of social-wear system that contributes to improvement of disaster prevention ability for local communities

Okada Shinya 1, Toshinari Nagasaka 1, Usuda Yuichiro 1, Tsubokawa Hiroaki 1

1 NIED

National Research Institute for Disaster Prevention is aiming at achievement and the offer of ”Disaster risk information platform (Bosai-DRIP)” as an environment to enable flexible profit use by opening disaster risk information so that national each one may do the approach that there are independent and effectiveness in disaster prevention and the disaster mitigation. Social wear system ”e community platform” that becomes a basic environment of the disaster risk information platform is developed as the part.

As for ”e community platform”, to become a tool that supports and promotes construction that improves the regional disaster prevention power while taking the results of the information technology skills such as CMS (contents management system), SNS (social service network), and CGM (consumer-generated media) related to the cooperation of labor and the extraction, sharing, and the solution of the problem, development is advanced.

It explains while exchanging the introduction of actual needs and the use realities in use in the region as practicing social wear to contribute to disaster prevention about a feature function of this system to which development is advanced by a design concept different from an existing system.

Keywords: Disaster Risk Information, Disaster Preparation, Disaster Prevention, Disaster Reduction, Disaster Mitigation, Local community, Information System, CMS, SNS, CGM

Keywords: Disaster Risk Information, Disaster Preparation, Disaster Prevention, Disaster Reductio, Local community, Information System, CMS, SNS, CGM

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i-Jishin Cloud System

Minoru Yoshida[1*], Hiroyuki Fujiwara[2], Yoichi Tanaka[1], Shinya Morino[1], Masayuki Oguni[1], Noboru Yuki[1], Shingo Kuroda[1], Toshiki Nakai[1], Hiroki Azuma[2], Shouhei Naito[2], Ken Xiansheng Hao[2]

[1]Hakusan Corporation, [2]NIED

1. Introduction

Countermeasures against earthquake disaster needs to offer tools and systems that people can easily access information, surely recognize circumstances and quickly make decision to keep oneself safe. From well specialized sector; measurement of earthquake, to non-specialized sector; the public, it is necessary to provide correct information without any barriers of the specialty.

To eliminate the barriers, we try to develop a cloud system *i-Jishin* that people can join the measurement and can browse data without any difficulty.

Following the first generation network consisted of on-site recording type classical seismographs, the second generation is characterized by telemetering system. *i-Jishin* cloud system is a sensor network applying cloud environment. In addition, the system provides web services aiming collaboration in future with other social network services. These characteristics make *i-Jishin* a different network from usual one. *i-Jishin* is an experimental system for the third generation network.

2. *i-Jishin*

We develop a sensor network by iPhone, iPad and iPod touch. With an application named *i-Jishin*, the terminals can catch earthquake, record acceleration of three directions, save data in itself and upload data with geographical position to an virtual machine at cloud environment. Users can browse wave forms and power spectrum with their terminals. Analysis such as filtering and integration for velocity and displacement can be carried out by the application. The sampling rate is 100Hz with 10msec error from Coordinated Universal Time. The maximum acceleration; 2,000gal, the resolution; 1gal, the frequency range; 0.1Hz - 10Hz. The uploaded information such as the maximum acceleration, the calculated seismic intensity, the sensor position, and so on, is shown at the website with the world map.

To start measurement, *i-Jishin* can receive the trigger signal that the server sends to all terminals within 500km from the epicenter when the Early Earthquake Warning (EEW) alarmed. The farther terminal receives the later trigger time because the server adjust the trigger time for each terminal depending on the traveling time of p-wave. Therefore each terminal measures whole earthquake vibration at each site without wasting memory resources.

3. *www.geonavi.com*

We launch a website *http://www.geonavi.com/* to offer services to the public. Everybody can access the website to see active sensors connected to the server on a list as well as on a map. The timeline-map interface provides the view of the EEW occurrence with observation result. Also user can see the data of each site of each observation graphically and can download the data file to their own PC if needed.

There are notification services such as Apple Push Notification Service that send a signal after the occurrence of an event. In this case the server-terminal connection is made after the event. However, our cloud system makes the always-on connection between each terminals and the server. Using this connection and the EEW triggering, we can collect observation data without any process for event extraction. This is because the terminal sensor works only when earthquake waves certainly come. The profit of collecting event data from various sensors is supported by the server side process in our cloud server. Let us call the integrated system of terminal, server and website as *i-Jishin* cloud system.

We are planning to add services of mash up the disaster risk information that offered by government organization and other groups.

4. Conclusion

i-Jishin application has been downloaded more than 20,000 times since August, 2010. Users are now spreading to worldwide. The website is highly suggestive of possibilities in combined system of earthquake measurement with sensors and the cloud environment. Measurement is not far from ordinary public when cloud environment can connect both ends by user friendly services, as *i-Jishin* cloud system suggests.

Keywords: cloud, smartphone, earthquake observation network, social media

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Development of viewer applications of the National Seismic Hazard Maps for smartphones

Hiroyuki Fujiwara[1*], Shinichi Kawai[1], Nobuyuki Morikawa[1], Hiroki Azuma[1], Yoshinori Homma[2], Toshihiko Hayakawa[2], Akira Narita[2]

[1]NIED, [2]MSS

1. Introduction

NIED has developed the WWW site to see ”National Seismic Hazard Maps for Japan”, J-SHIS in 2005. From 2008, a refined interface to view huge amount of hazard map images and data is added to the J-SHIS system by using and asynchronous HTTP request processing with JavaScript, and OpenGIS(R) standards. Higher usability, ubiquity and on-demand information delivery are required so that J-SHIS comes to be seen by more people and contribute to raise awareness of disaster prevention. To solve these issues, we developed a viewer application to view the national seismic hazard maps that runs on smartphones, which are getting popular in recent years.

2. Smartphone

A smartphone is a mobile phone that offers an advanced connectivity with 3G/Wi-Fi networks, higher computing and drawing ability, a full-featured web browser, a larger and finer screen, and touch-panel interfaces. In 2008, the smartphones become extremely popular in the wake of the launch of Apple’s iPhone Now in 2011, many smartphones installed Android OS developed by Google Inc. are also released. Behind the spread even more than the usability of the device, a variety of applications are developed using open development environments, and smartphone user can easily download and install them which are distributed in sites called ”Store”.

3. Application features

Our viewer application allows general users to easily view the latest probabilistic seismic hazard maps, influence maps, and shallow/deep subsurface structure maps, which are all supporting 250m mesh and published with WMS in J-SHIS site. Google maps service is used to display overlaid background maps. The user can select one from three type images, Streets (Street map), Satellite (Aero photo), and Hybrid (Street map over aero photo). Using a transmission changer for a hazard map layer, hazard levels are easily associated with features and landscapes in this application. Smooth map scrolling is controlled by a touch interface. In addition, ”Pinch-zoom” is available on a device with multi-touch interface. Location search function like J-SHIS site and realtime GPS tracking are also available. This application is developed for iPhone4 and Android2. They will be downloadable at each store for free.

4. Future development

When walking around with a smartphone installed this application, users would see the hazard maps and the actual landscape at the same time, then they could recognize the hazard information more with a feeling than when looking at them by PC on the desk. Studies will be made in the future on development of more immersive interface and information delivery by using AR (Augmented Reality) technology, for example, displaying meshed hazard information or information collected by social media on live-view image of smartphone. In addition, multi-hazard or risk information might be distributed on the same system. Therefore, the construction of hazard/risk information database further, interoperability of services as diverse as the various social media, and frequent and high precision positioning are required. The development of application will be made in parallel with growth of J-SHIS beyond infrastructure systems.

Keywords: Seismic Hazard Map, J-SHIS, Smartphone, IT, Positioning system