

# A Case Study of Web Journalism: The “Ramblings of a Volcanologist” Message Board

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By November 2001, the Internet had become a major medium in Japan. The household penetration rate had risen to 60.5 percent, 55.93 million users, and a utilization rate of 44 percent.<sup>1</sup> This emerging frontier in journalism and mass communications is now a serious rival to newspapers and magazines, radio and television.

The scope of “web journalism” is extremely broad and diverse. This paper will first define the basic criteria of journalism and present a general overview of web journalism, and then elucidate its characteristics, structure, and functions through an analysis and critique of the message board Aru Kazan Gakusha no Hitorigoto (translated here as “Ramblings of a Volcanologist,” and abbreviated hereafter to “Ramblings”).

The “Ramblings” message board was launched in April 1998 as a locus of information exchange among volcano specialists and people interested in the subject. It first came to public attention in March 2000 following the eruption of Mt. Usu in western Hokkaido. When volcanic activity on the island of Miyakejima in Tokyo prefecture began in June 2000, its popularity soared among scholars and laymen alike. The number of messages posted peaked at 282 per day during the major volcanic eruption on August 29, 2000, and they included running commentary by one participant who lived immediately below the line of pyroclastic flow.

This study analyzes the contents of more than 3,000 messages posted during the seventy-one-day period from June 26, when volcanic activity on Miyakejima began, to September 4, when the entire island was evacuated. The messages related to volcanic activity, the movements of the islanders, and coverage by the established mass media. At the same time, it will clarify the overall picture through information obtained from personal interviews with the message board administrator and the main contributors.<sup>2</sup>

<sup>1</sup> Ministry of Public Management, Home Affairs, Posts and Telecommunications, *Heisei juyonendo-ban johotsushin hakusho* [2002 Information and Communications White Paper], 2002.

<sup>2</sup> This paper is based on Hiratsuka Chihiro, *Saigai joho to media* [Disaster Information and the

“Ramblings” was selected as an example of effective and useful web journalism for the following reasons:

1. The subject matter, natural disasters, is a universal and socially relevant theme.
2. A high percentage of messages were posted from an extremely broad spectrum of participants including both scholars and ordinary citizens, island and non-island residents.
3. Information posted on the message board had a significant social impact.

These three factors correspond to the basic criteria of journalism delineated below. Far from being confined to a specialized audience, this message board exhibited a degree of universality that makes it typical of web journalism.

## WEB JOURNALISM

A brief definition of journalism is required before addressing the main theme. Mass media, mass communications, and journalism are very broad and vaguely defined terms that are often used synonymously in Japanese. Their relationship is summed up by the following sentence: Journalism is the act of spoken or written expression conveyed in the form and through the networks of mass communications within the spatial context of the mass media.

The function of journalism in society can range from leading public opinion and acting as the watch-dog of authority to being used as a tool of authoritarian control. Reporting methods are equally diverse. The basic criteria of journalism in principle, however, can be summarized by the four points below.

### 1) Up-to-the-minute and regularly updated

The term “journal” means “diary,” a daily record of fresh events. The first criterion of journalism, therefore, is the speedy reporting of news or information related to contemporary society, culture, and lifestyle and the frequent updating of this information as the situation changes.

### 2) Editorial

In journalism, information is edited. News items, data or knowledge are not merely collected and enumerated; they are also selected, appraised, and evaluated. In many cases, an organization or system is established for this

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Media] (Liberta Shuppan). The analysis in the third chapter, dealing with disaster information in the multimedia age, focuses on the Great Hanshin earthquake and the eruption of Mt. Usu in Hokkaido. The chapter also discusses the potential for use of multimedia in dissemination of disaster information. The present article carries that study one step further.

purpose and the people responsible are clearly identified. This editing function allows journalism to act as a gatekeeper, selecting content and topics.

### 3) Critical

Selection criteria and editing standards vary depending on the editor and his or her editorial policy. Journalism must maintain a critical stance towards power and authority, capital and business if it is to accurately convey the truth. It must go beyond merely reproducing official reports and propaganda or conveying announcements or interviews from such sources. It must appraise and evaluate the facts according to its own standards of value.

To do so requires diverse data-collection methods and objective reporting, as well as scientific discernment and logical judgment based on a well-informed view of contemporary society and an understanding of human beings and culture. Journalism is not a closed, private space; it must be open to society and public-oriented in its perspective.

### 4) Shaping Public Opinion

The final criterion is social impact on the subject matter and the potential to shape public opinion. Journalism encourages the formation of communities of common values and culture, and serves to integrate and unify social and cultural forces. For this purpose, it must be open and accessible through popular, mass-circulated media to anyone.

Journalism as defined by the four basic criteria outlined above comes in a variety of forms that range from general-interest magazines and newspapers to specialized newspapers and magazines dealing with economics, science, medicine, art or sports, as well as those directed at particular industries. Similarly, in broadcasting, there are general channels and specialized channels.

Just as there are high-brow, general-interest, and regular newspapers on the one hand and popular newspapers and tabloids on the other, in television broadcasting, there are news, commentaries, and documentaries versus talk shows. Journalism also can be divided into serious critical and mass-oriented journalism. Web journalism exhibits this same wide diversity.

Just as broadcasting emerged as a new form of journalism in a world formerly dominated by newspapers and magazines, web journalism is making its debut in a world neatly divided into the printed media and broadcasting. The form and structure of this newly emerging form of journalism differs considerably from that of its predecessors.

## **Web Journalism in Outline**

Web journalism can be broadly divided into two categories: websites on the

one hand and participation-oriented message or discussion boards or groups (also called forums or newsgroups) and mailing lists on the other. Examples of web journalism that fulfill the criteria outlined in the preceding section range from the websites operated by mass media corporations to the mammoth message board Ni Channeru ("2 Channel").

Websites of newspapers, magazines, broadcasting companies, and other mass media firms are the most common. A glance at the content reveals that the majority consist primarily of news coverage or information that has been edited and digitalized. In this case, the Internet has merely been substituted for newspapers or broadcast waves as the method of transmission. Although newspaper websites strive to provide news more rapidly than their printed counterparts, the content is almost entirely the same. Such websites are now an important news source for students and young people who read newspapers less often. Television station websites generally give greater weight to providing program information and advertising and to the personal pages of certain announcers than they do to news coverage.<sup>3</sup>

There are also news and information websites run by individual journalists or groups of journalists and news portals managed by major providers or by individuals. The sites of well-known, frequently published journalists are generally dominated by reproductions of newspaper and magazine articles or previously broadcast programs. There are also many websites providing specialized information.

News portals managed by providers like "Yahoo" and "goo" are comprised of excerpts from newspaper websites, etc., and traffic is heavy. One site booked a record 359 million page views in a single day.<sup>4</sup>

News sites operated by individuals, on the other hand, generally contain news items of interest to the administrator accompanied by short, personal commentary. Links to other sites are often included, connecting the viewer directly to the news source (usually a newspaper website). These sites abound

<sup>3</sup> As of June 2002, of the 117 newspapers and news agencies belonging to the Japan Newspaper Publishers and Editors Association, 103 (92 percent) have their own websites. In June 1997, only 65 had a personal website, indicating an extremely rapid response to the Internet, at least in terms of volume. The contents are not directly reproduced as PDF files and therefore they do not represent a substitute for newspapers in a business sense. As for television companies, all 136 of them have their own website and 110 (81 percent) of these transmit news. Fifty-nine (43 percent) transmit both national news from key broadcasters with which they are affiliated and local news. This survey was conducted from May to June of 2002 by the Web Journalism Research Group, NHK Broadcasting Culture Research Institute, in cooperation with Naka Masaki, a doctoral student at Musashino University, and a search engine was used to locate items that fulfilled the basic conditions of journalism.

<sup>4</sup> Yahoo, July 10, 2002, report on typhoon number 6.

and come in a great variety of sizes. They may become instantly popular and just as instantly vanish. A few boast a regular daily readership of over 10,000 people and are similar in function to news portals.

Message boards, mailing lists, and chat sites are also peculiar to web journalism and, in comparison with media companies' websites and individuals' news sites, they fully exploit the advantages of the Internet. By facilitating the interactive exchange of information and opinions among multiple participants they are helping to create a new frontier in journalism.

Message boards originally began on PC communications networks and many were used at the time of the Great Hanshin Earthquake that struck Kobe and its vicinity in 1995.<sup>5</sup> The Internet, however, has since replaced PC networks in the central role because it is open to anyone, is free of charge, and does not require membership. Message board administrators are responsible for editing messages, and their editing policy influences the message board's character, direction, communication, and formation of consensus.

Unlike mailing lists, posting messages on a message board requires no registration or other preliminary procedure. In addition, many participants are Internet surfers who view the site but never post any messages. The number of hits per day on such message boards as 2 Channel, the Yahoo Message Board, and Ashura, which deals with current affairs, exceeds 100,000, and the total number of message boards both large and small is phenomenal.

Content covers a wide range of topics from political, economic, social and international affairs to culture, entertainment and sports, but the majority of message boards deal with social issues closely related to the lifestyle of ordinary citizens presented from the people's perspective. Consequently, many are run not only by individuals but by civic groups and non-profit or non-governmental organizations, particularly in the fields of the environment, medical and health services, education, human rights, media, disaster relief volunteer activities, and lifestyles. These forums are nurturing a new realm of communication.

Message boards reflect current trends and social movements more sensitively than websites maintained by established mass media companies and, consequently, they go in and out of fashion with remarkable speed. Except for those administrated by well-established organizations, few remain active for long periods of time. Some message boards launched at the time of the Great Hanshin Earthquake, for example, later continued under different topics, while message boards dealing with the personal information protection bill

<sup>5</sup> Hiratsuka Chihiro, "Disaster Information in the Multimedia Age," *Studies of Broadcasting*, No. 32, 1996, NHK (Japan Broadcasting Corporation).

and legislation on how Japan should respond to a national security emergency in the region were particularly numerous from May to June 2002.

Although professional journalists rarely contribute to message boards, the growth of these venues as an important arena of journalism cannot be ignored. Message or discussion boards reflect current topics and people's interests with an immediacy that attracts a significant, if not necessarily constant, readership, and they also have an impact on society.

2 Channel, for example, offers many discussion forums and topics, the content of which ranges from something resembling outhouse graffiti to sophisticated academic discourse. Although the numbers may be insufficient, a group of administrators has been placed in charge, and the board is accessed 100,000 times a day.<sup>6</sup> This alone inspires an image quite different from conventional journalism in the mass media.

This paper elucidates the structure, function, and characteristics of web journalism through an analysis and examination of "Ramblings," an Internet forum that demonstrates some of the most eminent features of web journalism.

## "RAMBLINGS" AND METHOD OF ANALYSIS

### "Ramblings"

The message board "Ramblings" (<http://www.jah.ne.jp/~chili/camp/nagaya.cgi?room=005>) was launched on April 9, 1998 by Chiba Tatsuro, a part-time university lecturer and volcanologist employed by Ajia Kosoku, an aerial survey company. He described his objectives as follows:

I'd like to aim for something more flexible than a mailing list, to provide a forum where we can freely discuss volcanic eruptions, disasters, science fiction or anything else that interests us in ordinary times but where we can also keep in contact with each other during emergencies. (Message No. 2; hereafter No. xx denotes message number.)

The word *hitorigoto* in the name of the board (which means "talking to oneself" as well as "rambling on") was taken from the name of an existing message board. Chiba used the word to mean "free, unrestricted expression," rather than "whispering privately" or "muttering to oneself." His aim was to create a forum that encouraged the uninhibited exchange of interpretations and views among volcanologists, scholars, and other interested persons, par-

<sup>6</sup> Inoue Toshiyuki + Jingumae, *Ni Channeru sengen—Chohatsu suru media* [2 Channel Declaration: A Provocative Medium], Bungei Shunju, 2001

ticularly concerning volcanic disasters and disaster-prevention. The line “topics such as science fiction, movies, etc. may also be discussed freely” appearing beneath the title on the front page was not intended to open up the discussion to people specifically interested in such topics, but rather to encourage broad discussion, including these topics, in order to ensure that communication lines would be fully functional in times of emergency.

### Structure

Chiba borrows space from a provider where up to 200 messages can be saved. Participation is unrestricted and anyone interested can participate by clicking “register a message.” Messages can be viewed and edited immediately after posting and, once posted, can also be deleted by the message board administrator or the sender.

All messages are numbered consecutively and later archived in groups of 100 by one user to be saved as “past files” (<http://www.madlabo.com/mad/research/volcano/index.htm>). In addition, messages 1,700 to 5,699 have been provided with brief summaries and can be freely accessed, excluding those messages that have been deleted.<sup>7</sup>

### Users

Message board, mailing list, and chat room users often send messages anonymously or use handles rather than their real names, and this is true on “Ramblings,” as well. Anonymity can mean that the user feels less responsibility for the content of messages and the content can become emotional. At the same time, however, some people need this anonymity in order to offer more detailed or in-depth information, such as insider facts. Debates take place frequently concerning the anonymity on “Ramblings,” but the administrator recognizes that this anonymity cannot be avoided in a society that discourages people from revealing information that might be critical of the organization to which they belong, namely contemporary Japanese society. Compared to other message boards, however, a significant number of contributors use their real names and the archives contain a list of “participants” with brief self-introductions.

At first, the majority of participants were either volcano and disaster-prevention specialists from universities or research institutes or well-informed laymen with a strong interest in the subject. With the eruption of Mt. Usu in

<sup>7</sup> In addition to past files, messages concerning volcanic gas have been extracted and filed and can be accessed on another website (<http://www.madlabo.com/mad/research/volcano/gasindex.html>).

Hokkaido (March 28, No.1130), however, the site began attracting wider attention and participation by local residents and ordinary citizens leapt sharply with the eruption of Mt. Oyama on the island of Miyakejima in Tokyo prefecture (June 26, No. 1608). At the same time, unrelated topics, such as science fiction or movies, vanished, and the following warning appeared under the board title clarifying editorial policy: "This site is moderated; personal attacks, rumors and objectionable statements will be deleted."

### **Survey and Analysis Methods, Subject, and Time Period**

Unlike newspapers, web journalism does not require a fixed page format or framework. Nor does it have a time schedule or sequence like a broadcast. Message board users post messages chronologically and their length, which is left entirely up to the author, depends on the content. The volume of messages swells to enormous proportions when there is an accident or other newsworthy event and shrinks to a trickle or ceases entirely when nothing eventful is happening, because there is no obligation to fill empty space with other news. It is not that such boards are short-lived: rather, there is tremendous fluctuation, from periods of hyper-action to normal activity or even dormancy.

This paper analyzes survey data from the message board's most active period when it had the greatest social impact, beginning on June 26, 2000 (No. 1607) with the occurrence of the first volcanic earthquake swarm in Miyakejima and concluding on September 4 (No.4699) with the complete evacuation of the island seventy-one days later. A total of 3,080 messages was posted during this period (June 26 to September 12, Nos.1607 to 4687), but as some had already been deleted, the actual number surveyed was 2,704.

Although the focus of this study is web journalism, any analysis requires more than examining the content of the messages passing through cyberspace or analyzing related statistical data. Just as in analyzing conventional forms of journalism, the focus must extend beyond the medium to carefully examine not only the content but also its relationship to trends in society during that period, social concerns, and conditions. Accordingly, this paper seeks to analyze the relationships between message content and volcanic activity, movement of the islanders and coverage in other mass media and, at the same time, to provide an accurate overview of message board journalism through interviews with the main contributors.



## THE CREATION AND DEVELOPMENT OF “RAMBLINGS”

The development of the “Ramblings” message board was closely related to the government’s response at the national, prefectural, and local levels to volcanic activity in Miyakejima, the disaster itself, and the release of information by the Japan Meteorological Agency (JMA), the Coordinating Committee for Prediction of Volcanic Eruption (CCPVE) and the Committee’s Izu subcommittee. The events are presented chronologically below.

### **Earthquake Swarm and Emergency Information (June 26–July 7)**

On the evening of June 26, 2000, a series of earthquakes occurred on Miyakejima. The JMA put out a Volcanic Alert, a warning issued only when there is imminent danger of volcanic activity that threatens lives and property.<sup>8</sup> The CCPVE also issued a warning.

Miyakejima is a volcanic island located in the path of the Japan current of the Pacific Ocean about 180 km south of metropolitan Tokyo. It is part of the chain of islands called the Izu archipelago. Oval in shape and with a diameter of less than ten kilometers, it is home to about 3,800 people who live in villages scattered along its shore. The volcano erupts about every twenty years and experts had been keeping a close watch on it in anticipation of another eruption in the near future. For the last five centuries, the volcano had exhibited a similar pattern of eruption preceded by considerable seismic activity, followed soon after by fluid lava flow from fissures in the mountainsides. The night of the 26th, the national and Tokyo prefectural authorities accordingly set up emergency disaster prevention headquarters and advised the 2,600 islanders living in the area most likely to be in the path of lava flow to evacuate.

As reporters, cameramen, and other representatives of the mass media are not normally stationed on the island, the websites of the local tourist association, Chamber of Commerce, and other organizations were flooded with requests from newspapers, television, news agencies and magazines seeking footage of the moment when the eruption or lava flow began.

In the end, no immediate eruption occurred on the island, although a small-

<sup>8</sup> Four types of volcano information are issued by the JMA as follows: 1. Volcanic Alert, issued when volcanic activities threaten lives; 2. Volcanic Advisory, issued when unusual volcanic activity is observed and caution is needed; 3. Volcanic Observation Report, issued as detailed supplementary information to the Volcanic Alert and Volcanic Advisory; and, 4. Regular Volcanic Message, issued regularly to provide information on volcanic activity. During the volcanic activity on Miyakejima, a Volcanic Alert was issued only once. No Alert was announced during the major eruption on August 18 or even on August 29, although this activity resulted in full evacuation. This fact was criticized and was the subject of frequent debate on the message board.

scale eruption occurred on the ocean floor to the west. Magma migrated westward from the island, causing repeated seismic tremors in neighboring islands such as Kozushima, Niijima, and Shikinejima. On June 29, the CCPVE declared Miyakejima to be safe, rescinded the evacuation warning and closed its headquarters.

The CCPVE, successful earlier in its handling of the Mt. Usu eruption in Hokkaido, was praised for what it accomplished and the timeliness of its announcements. The islanders, who were on the threshold of the busy tourist season, breathed a sigh of relief, and life returned to normal. The attention of the media and the public was redirected towards earthquake swarms occurring in neighboring islands.

Messages to the "Ramblings" message board began with this note concerning volcanic activity, "It's just as you specialists said. It seems that activity in Miyakejima has begun" (No. 1617, 19:57), and was followed by a series of messages, primarily from scholars, experts, and laymen with reliable knowledge of volcanoes or earth science, concerning the seismic activity, magma movements, and the eruption on the ocean floor. People offered their interpretations of the earthquakes or discussed such subjects as a name for the volcanic activity. Fifty messages were received on June 26 and 27 immediately after seismic activity began but thereafter the number decreased to a less significant rate of fifteen per day.

### **Mountain Top Collapse and Islander Participation (July 8–25)**

From July 4, seismic tremors were recorded immediately below the volcano's summit and on July 8 it erupted at 6:43 p.m., sending a plume of smoke 800 meters into the air. (This figure was later corrected to 1,500 meters.) The eruption was found to have caused a large-scale collapse of the crater (No. 1803). The unfolding scenario did not follow initial predictions. A lively exchange of messages on the message board ensued concerning interpretations of this very rare event, reportedly the first time in recorded history that the creation of a caldera was witnessed in Japan or anywhere in the world. Graphic depiction and mapping of the collapse using photos from the media and aerial surveying companies were undertaken via the message board.

The CCPVE and JMA announced that caution should be continued near the summit but that no effect was expected at the foot of the mountain. Despite the continuation of palpable seismic tremors, the general outlook of island residents was optimistic. Messages to the message board included suggestions for making the area and its extremely rare caldera a new tourist site and discussion of an attractive name for it. Neither the experts nor the islanders sensed any impending danger.

Although the amount was negligible, this eruption was also accompanied by volcanic ash. Chiba, the message board administrator and an employee of Asia Aerial Surveying, posted a request for information on falling ash in order to locate the area for an aerial survey (No. 1817). An islander who used the handle "Sadazo" participated for the first time (No. 1818, July 9), driving about the island until late at night and reporting the results of his survey on the message board. This began an exchange between the islander and the experts.

At 4:00 a.m. on July 14, after a night in which the number of palpable seismic tremors exceeded 100, an eruption began at the summit (No. 1906) and volcanic ash fell over the northeastern part of the island. A Volcanic Advisory was issued, indicating the presence of unusual volcanic phenomena and the need for preparedness, and some of the islanders were advised to evacuate. The eruption continued intermittently for a long period on July 15 and the area of falling ash, rock, and collapse continued to expand. At 10:30, a strong earthquake registering a low-6 on the Japanese seismic scale occurred in neighboring Nijima and the number of palpable seismic tremors exceeded 300 that day.

It was around this time that experts in the field began to take a more negative view, speculating that this might be a new and different type of eruption, and their sense that the situation was critical increased. The national and prefectural emergency headquarters, however, had already been disbanded and the islanders themselves were overwhelmed with the task of removing the ash.

The collapsed area of the crater continued to widen, and on July 20 the television relay station that had been broadcasting to the village on the southeastern side of the island collapsed into the crater (No. 2124). During the period of greatest activity, palpable tremors were recorded every two to three minutes, but the CCPVE forecast still negated the possibility of an eruption at the base of the mountain and volcanic activity lessened. On the island, residents were uneasy about possible mud flows from the volcanic ash, a phenomenon they had not experienced in previous eruptions.

Around this time the message board administrator Chiba and Professor Nakata Setsuya from the University of Tokyo Seismic Research Institute arrived on the island and visited the town hall to explain their predictions of mud flows using data from field surveys, "Sadazo," and other sources.

### **Mud Flows, Local Participation, and Information Exchange (July 26–Aug. 9)**

On July 26, Sadazo reported the occurrence of a mudslide. "It rained heavily for about one hour from around 7:30, causing a mud flow in the streambed beside the Miyakejima town hall. The path from the traffic light on the prefectural road down to Miike Port is covered with mud, sand, and tree

branches . . . ” (No. 2222, 9:47). This was followed by a message from a participant named Kiyoshi. “If it keeps raining like this, we’ll be in grave danger. The Kamitsuki fire brigade has been called in to handle the situation. I wish that Tokyo prefecture would set up emergency headquarters again.” (No. 2224, 10:39)

On July 27, “Wrestler Tenjin” wrote, “Allow me to introduce myself. I live in Miyakejima, too, and I am listening intently to the rain to make sure I don’t miss any other sounds. It looks like tonight will be another sleepless night. I’ve been checking out different websites and finally found this message board. Reading it has made the situation seem even scarier. . . . I feel like yelling, ‘Somebody please help!’” (No. 2258, 2:36)

Local anxiety intensified with exposure to the new threat of mud flows, and the number of local residents participating in “Ramblings” increased daily along with the overall number of messages. The islanders not only posted information about the current situation, they also learned about the nature of volcanic ash, the relationship between rain and mud flows, and the progress of eruptions through personal exchanges with participating scholars and experts. At the same time, the experts discussed among themselves the data, their interpretations of the continually expanding crater, and the possibility of making a hazard map to predict mud flows.

On August 4, a study meeting on volcanic activity in Miyakejima was held by the local Junior Chamber of Commerce with the message board acting as an intermediary. Professor Nakata of the University of Tokyo Seismic Research Institute, who was already on the island, was there to explain the situation and field the barrage of questions from the participants, predominantly young men from the island starved for information.

On August 6, “Satoshi,” an islander who made a living from producing *kusaya* (dried horse mackerel), a local product, joined the message board discussion with the following message. “I am living in a state of total uncertainty, unable to foresee what will happen to our island of Miyakejima. I don’t know what measures should be taken in what particular cases. I believe, however, that when it comes to my own house, it is I who must decide. In order to make such decisions, I need information and reference materials. I think there must be many things I could prevent if I only knew about them. There is so much I want to know yet there is almost no information available. This message board is therefore extremely precious to me.” (No. 2444, 20:33)

Living in a state of total uncertainty with little access to information and unable to predict what would happen next, the islanders came to regard the message board as a lifeline essential to their efforts to protect their lives and livelihood. It was around this time that the experts and scholars began posting

messages warning people of the increasing danger of mud flows, and the islanders began to criticize the handling of the situation by government authorities. On August 10, the administrator posted a warning about letting information on the message board get out of hand and become the source of false rumors.

“I must caution everyone to please refrain from making statements that serve only to exacerbate the anxiety of the local residents. Of course it is good to have realistic fears, but statements based on misconceptions with no basis in fact, such as ‘no one is doing anything about the situation,’ unnecessarily upset people.

“In order to respond to inquiries from Miyakejima residents we have prepared a diagram illustrating the distribution and scope of mud flows accompanying the heavy rain on June 26 and have combined it with a map of the mud flow area and the distribution of falling ash, with photographs from the field and side oblique aerial photographs displayed around it. The village authorities will have it put up as soon as possible in public places on the island. . . .” (No. 2501, August 10, 6:25).

The aspirations of young researchers from the University of Tokyo Seismic Research Institute to set up a volcano observation camera were fulfilled through message board exchanges when a camera, dubbed the “Sadazo Camera,” was set up on the second floor of Sadazo’s house, which had a good view of the mountain.

### **Intermittent Eruptions, Spreading Damage, Anxiety (August 10–17)**

On August 10 at 6:30 a.m. immediately after the admonition posted by the message administrator and the day before the Sadazo Camera was installed, Mt. Oyama erupted yet again, sending a 3,000-meter (later corrected to 8,000-meter) plume of smoke into the air. The eruption continued intermittently until after 11:00 and the islanders were once again officially advised to evacuate to shelters on the island.

The CCPVE took the position that “the scale of the eruption is small and within the sequence of activity predicted and it is gradually diminishing in scale.” They also cautioned people to be wary of mudflows.

Discussion on the message board focused on an analysis of ash distribution, aimed at determining the presence of magma, and a debate concerning the eruption mechanism. It also included criticism of the view presented by the JMA and CCPVE and the scanty press coverage, as well as calls for reestablishment of an emergency headquarters.

Smoke continued to issue from the volcano and intermittent eruptions

occurred on the 13th, 14th and 15th. Falling ash reached as far as villages on the western side of the island and residents battled daily against the deepening layers of ash.

Soon after, it became clear from photographs and islander eye-witness accounts exchanged on the message board that the eruption on the 10th had been accompanied by a pyroclastic surge (a small-scale pyroclastic flow) from the lowest point in the wall at the crater's edge.

### **Major Eruption, Sense of Crisis, Faith in Message Board (August 18–28)**

On August 18, after a series of strong earthquakes that continued half the night, two strong earthquakes registering a low 6 on the Japanese seismic scale occurred on neighboring Shikinejima, one at 10:52 a.m. and one at 12:49, rocking Miyakejima as well. At 5:02 in the afternoon, the largest eruption began. As soon as it started, residents from every part of the island began relating what was happening.

“The volcano just erupted. The wind is from the east.” (No. 2750, 17:11, Sadazo)

“It’s incredible. The smoke is rising higher all the time and thunder has been rolling incessantly. A cloud of smoke blew past sideways that made me think there must be pyroclastic flow (?) [sic] to the left of Sabi Port. It was so high that I think it will be some time before the ashes fall. At any rate, it appears to be the biggest so far.” (No. 2752, 17:35.39 seconds, Hiroji)

“Evacuation warnings have been announced in every area.” (No.2754, 17:38, Sadazo)

“Ashes are falling even in Izu district, which up to now was considered safe. Okubo beach, too, has turned pitch black. . . . What on earth is going to happen? Surely this situation is equivalent to a full-evacuation level. The ground keeps shaking and the earthquakes don’t give any sign of abating.” (No. 2756, 18:07, Tenjin)

“Even near Sabi Port, quite large rocks are falling, mixed with gravel. . . .” (No. 2757, 18:37, Hiroji)

“I was so busy warning the elderly residents in the neighborhood to evacuate that I was too late to escape myself. . . . I have closed the shutters and am waiting inside. . . . It isn’t just ashes falling; I also hear the sound of something like volcanic shells clanging against the roof. It’s terrifying.” (No. 2758, 18:48, Sadazo) Shortly after 7:00 p.m., a digital photo by Sadazo had already been posted on the site. (No. 2762, 19:01)

The smoke from the volcano rose as high as 14,000 meters and ashes fell over almost the entire island. Ballistic ejecta 5 centimeters in diameter fell

over a wide area and some more than 50 centimeters in diameter were found along the highway encircling the island, as promptly reported on the message board.

Fortunately, no one was hurt because the stones were spewed from the volcano towards the end of the eruption, giving people time to escape to designated shelters and many residents, realizing the danger, fled into their houses without even attempting to reach the shelters. Many car windows were smashed, however, and fifteen head of cattle in a pasture near the summit were killed.

The local weather station and the JMA, however, reported only that the smoke rose to over 8,000 meters and did not mention the ballistic ejecta. Reports in the mass media similarly focused solely on the falling ash. The islanders' anxiety and fear heightened and more of them began to participate in the message board, trying to convey the reality of their situation and appealing for an appropriate response from the authorities.

The volcanic disaster had gone beyond what local residents could endure. The islanders' sense of crisis deepened and an increasing number began to call more vocally for disaster prevention measures and total evacuation of the island.

It must be acknowledged that in an eruption of this size, it was mere chance that no one had been killed or injured. The islanders' frustration and anger at being virtually ignored by the government authorities and the media alike was vented on "Ramblings," which many were now accessing, and their messages came increasingly to resemble cries of panic.

"Although I have not yet heard of any islanders being badly injured, I think this is nothing short of a miracle . . . I am a junior high school teacher, and our school has been turned into a shelter many times. It was a shelter during the eruption on August 18, too. There are many elderly people here. But no doctor or nurse. What are we going to do if someone gets injured or sick? . . . We cannot escape by land; this is an isolated island." (No. 2847, August 19, 22:00, Buhyo)

"At 8:30 on the 18th I left my home in Tsubota, and came to Ako Elementary School, which has been turned into a shelter. Everyone was pitch black. . . . Even our ears were filled with ash.

"The situation of us Miyakejima islanders is not much different from the sailors on the Russian submarine!!!"<sup>9</sup> (No. 3093, August 22, 19:47, Satoshi @Miyake Resident)

"This is my first time to send a message . . . The media since yesterday have

<sup>9</sup> On August 14, 100 sailors were killed when the Russian nuclear submarine Kursk sank in the Barents Sea.

not mentioned this, but what is raining on Miyakejima right now is not ash but rocks. . . . On August 18 countless rocks more than 5 centimeters across rained down on my children's kindergarten and school. This is the absolute truth. Why doesn't the media cover the facts? . . ." (No. 3110, August 23, 01:05, Miike Resident, Hama)

People not only wrote to and read "Ramblings." They passed on the information obtained from it by word of mouth. A stack of "Ramblings" messages ten centimeters high was printed and made available at such places as the agricultural cooperative. Some local assembly members stressed the need to consider aid measures and evacuation, waving copies of the message in their hand. Although Internet access on the island was not that widespread, "Ramblings" actually had more social impact than JMA and CCPVE announcements or the news offered by the mass media<sup>10</sup> and came to influence the formation of general public opinion not only on the island but in other parts of Japan.

Perspectives on the eruption presented on the message board grew increasingly pessimistic, and criticism of the authorities and the mass media grew harsher. The number of messages removed by the message board administrator increased correspondingly due to a sharp rise in extreme statements such as "I'm going to die" and "We'll all be killed." The islanders' sense of helplessness and anger was being vented live on the message board, and the administrator took this step in order to maintain its function, the social impact of which had expanded. (figure 1)

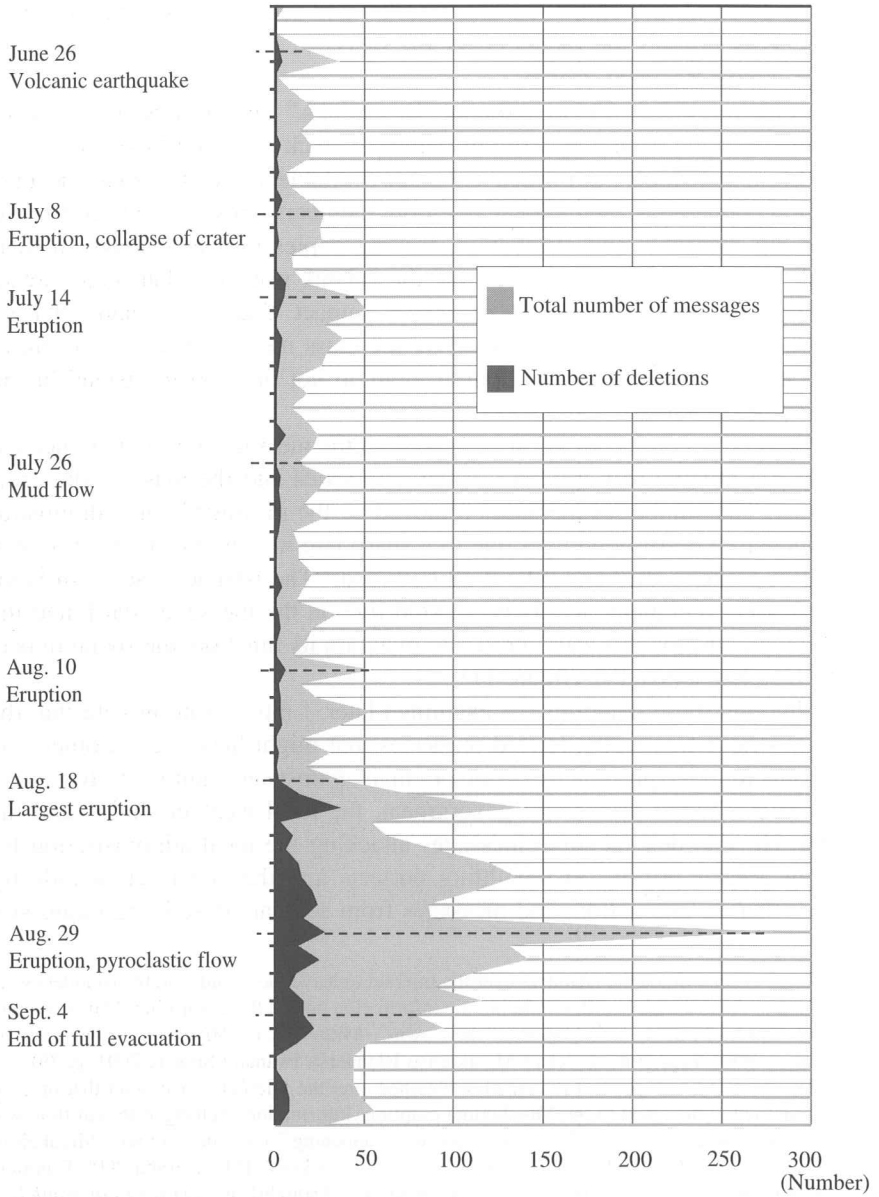
Although these deletions are examined later, I must mention here that the administrator frequently deleted messages that might have incited other participants to lodge protests by phone or email against such administrative agencies as the Tokyo prefectural government, the local weather station and the JMA. He also deleted some messages attacking the local administration for giving greater priority to rebuilding projects and the construction industry rather than to evacuation, and messages from scholars describing tragic vol-

<sup>10</sup> "Some experts urged the islanders over the Internet to leave the island, and the islanders were glued to the message board, pondering the information posted there, forming their own opinions and transmitting information of their own." (Mitani Akira, *Miyakejima tomintachi no ichinen* [One Year in the Lives of Miyakejima Islanders], Iwanami Shoten, 2001, p. 26).

"The diversity and speed of information obtained over the Internet is one point that must be mentioned with regard to the Miyakejima eruption. Information exchanged in real time was the most effective means of learning what was happening." (Aotani Tomoki, "Miyakejima nisenen funka: Genba de torikunde-kita koto, kangaeta koto" [Miyakejima 2000 Eruption: Being There—What We Tried to Do and What We Thought], in *Nikkyoso dai-gojuichi-ji kyoiku kenkyu zenkoku shukai hokokusho* [Report on the Japan Teachers' Union 51st National Conference on Education Research] 05B-p. 58)



**Figure 1. Number of Messages and Deletions by Date**



canic scenarios in graphic detail. But some of these exchanges were allowed to appear on the board.

During the largest eruption on August 18, an even larger pyroclastic surge occurred than on August 10. Scholars engaged in technical discussions on the message board, interpreting information on surge conditions and speculating as to the causes and process of occurrence. They were conscious, however, that the islanders were also reading their messages and used language that was relatively easy to understand.

The topics debated by the specialists and scholars were not restricted to the eruption. When volcanic activity failed to subside as initially expected, discussions extended to disaster prevention measures and a system of implementation, the legal significance and force of volcano data, organization and identification of responsibility, and even to judiciary procedures.

Islanders were not the only ones whose participation in the message board increased. At about this point survivors of the Mt. Usu eruption in Hokkaido began to join in with messages, based on their own experience, criticizing the tardy government response on Miyakejima (No. 3107), the media's approach to reporting (No. 3342), and the lack of crisis awareness among politicians and local authorities (No. 3419), and they emphasized the severity of the danger, equating the situation on Miyakejima to the "off limits" zone in Mt. Usu (No. 33541, No. 3599).

The CCPVE position presented at a meeting on August 24 stated that "there is a possibility that volcanic eruptions of the same or greater intensity as that of August 18 at the summit may be repeated," essentially retracting their declaration of June 29 that the island was safe. At a press conference, CCPVE Chairman Ida Yoshiaki stated, "Quite frankly, it has become very difficult to forecast," but this was presented not as a Volcanic Alert but rather as a regular Volcanic Advisory. Nor did the response of the prefectural authorities change, much to the disappointment of local residents and participants on "Ramblings."

The next day, on August 25, Sadazo inserted handbills in the local newspaper to be delivered to every household on the island. Entitled "To the Islanders," it contained content from messages sent to the message board that Sadazo had edited and polished. It explained the nature of the eruption and current volcanic activity and the ever-mounting risk and urged people to evacuate of their own accord as total evacuation had not been officially declared. He concluded with the following words:

"Another major eruption may or may not occur. Those of you who read this and think, 'It's definitely dangerous,' take action. Those of you who think, 'It will be all right,' please feel free to ignore this warning. Forget about this

handbill. Some may curse me as a big liar. I am fully prepared for that as I write this.” (No. 3388)

On the same day, the Miyake branch office of the Tokyo prefectural government also distributed an announcement that read, “There are many different points of view, but the prefecture and local authorities will act in accordance with the official views presented by the JMA and CCPVE. We will be distributing helmets to all residents to be used in the event of ballistic ejecta.” (No. 3410)

Although the number of islanders evacuating of their own accord had been steadily increasing, the figures leapt dramatically after this point. By the time of the eruption on August 29, the original population of 3,800 had dwindled to 2,400.

### **Messages from Below the Line of Pyroclastic Flow (Aug. 29–Sept. 4)**

At 4:35 a.m. on August 29, another large-scale eruption began. Smoke rose to 8,000 meters and low-temperature pyroclastic flow<sup>11</sup> occurred in two directions. The flow down the northeastern flank was long, traveling a few hundred meters into the sea.

Messages came in from islanders in every location concerning the conditions of the eruption, and “Ramblings” administrator Chiba, who had just arrived on the island, also posted photos and a report. In addition, one of the islanders who used the handle “Miyaru” began reporting from below the line of low-temperature pyroclastic flow.

“The stench of sulfur is very strong. Even though my door is closed, the stench near it is enough to knock you over. Perhaps it comes through the cracks. In addition to the sulfur smell, which has remained the same since the day before yesterday, I can smell something like rusty iron.” (No. 3764, 05:19)

“There is some kind of mist, perhaps ash or gas, filtering through the cracks in the ventilation fan and other places. It seems to be circulating in the air. It stinks. . . .” (No. 3785, 05:37)

“. . . How can I protect myself from this gas coming into the room? . . . My nose stings. It’s hard to breathe.” (No. 3796, 05:46)

“. . . Visibility in the room seems to be getting worse. I’ve got the exhaust fan going but it seems to be blowing the mist back into the room. It reminds

<sup>11</sup> A pyroclastic flow is a rapid flow of mingled ash, rocks, air, and hot gases gushing down the side of the volcano. Large flows of this type are extremely dangerous and destructive. The flows at the time of the eruption of Mt. Unzen Fugen-dake in 1991 killed 44 people, including reporters. A similar flow was feared during the eruption of Mt. Usu in 2000.

me of an illustration that shows the gas chamber in Auschwitz with gas showering down from the ceiling. When I wipe the tabletop with my hand, my hand gets somewhat sticky. Phew! It reeks!" (No. 3805, 05:52)

". . . Gas seems to have stopped filling the room." (No. 3825, 06:08)

Television stations had sent crews to the site to relay scenes for their morning news programs, but the eruption was treated merely as one item and the topic quickly shifted to other news without giving any details of the eruption or reporting the occurrence of pyroclastic flow. The message board, on the other hand, did not stop with vivid live reports from below the line of flow. At 5:25, pictures were sent from the Sadazo Camera (No. 3770) and at 7:53 Chiba, who was visiting the island, posted conclusive photos of the occurrence of pyroclastic flow (No. 3854). Just as on August 18, coverage on "Ramblings" proved to be timelier than announcements from the JMA or mass media reports.

Ordinary citizens and Miyakejima residents who had been reading "Ramblings" began phoning the local weather station, the meteorological observatory, the JMA, and the press, not for information, but to protest.

At 11:00 a.m. on the same day (29th), the prefecture finally set up an emergency headquarters, and in the afternoon, a national emergency headquarters was also established. A decision was made to evacuate all children from the island two days earlier than planned.

On the evening of the same day, the JMA announced that low-temperature pyroclastic flow appeared to have occurred, and the media began clamoring for copies of the photographs of the flow posted on the message board.

Another eruption occurred in the afternoon and the message board became the forum for a serious exchange on survival, discussing what to do the next time a pyroclastic flow occurred and measures for self-protection against ballistic ejecta. Messages of encouragement to the islanders from other parts of Japan and messages criticizing the authorities poured in, while the volcanologists expressed concern about the emission of 20,000 to 40,000 tons of gas in a single day, the largest in recorded history, and attempted to interpret its significance.

The first message received from a person connected with the CCPVE was received on August 30. "Many members of the JMA are keeping close tabs on this website as an important source of information. The anonymous sources, however, are considered unreliable—a mixture of stones and gems—and for this reason, the information is not being taken seriously. The unfortunate truth is that the CCPVE subcommittee is not using it in its investigation. From the viewpoint of scholars like myself, this is an outrageous example of government bureaucracy, but it is a fact. . . . I therefore have a suggestion. If possi-

ble, please clearly identify the sources of these precious eye-witness accounts so that people involved in the JMA can more easily verify their accuracy. . . .” (No. 4066, 10:56 Koyama Masato)

Data from “Ramblings” were used at a CCPVE meeting on August 31 (No. 4537), and the organization finally acknowledged the occurrence of low-temperature pyroclastic flow. Although a Volcanic Alert was not announced, the CCPVE chairman stated as his private opinion that “I would like those involved in disaster prevention to attach greater importance to this fact.” Tokyo prefecture, which had been passively basing its decisions on the CCPVE’s viewpoint, could no longer evade responsibility, and it finally began total evacuation of the island, to be completed by September 4.

On September 4, messages from the island ended with a report from Sadazo that he had turned off and dismantled the observation camera, and “Ramblings” became once again a message board where scholars and experts discussed topics focusing primarily on volcanic gases. The message board is still in operation and messages at the end of August 2002 had reached more than 10,000.

#### WEB JOURNALISM AS FORMED IN “RAMBLINGS”

Having reviewed in detail the development of “Ramblings” during the eruption of Miyakejima, the next step is to examine its characteristics, structure, and function in terms of online journalism.

Unlike conventional forms of mass media in which communication is uni-directional (one-to-N), communication on web message boards is interactive or n-to-N, facilitating a forum of information exchange. The content and purpose of messages exchanged can be broadly divided into three categories: (1) information sharing; (2) expression and exchange of opinions; and (3) means of communication and contact.

Information sharing includes the islanders’ reports on the eruption and resultant damage, the sharing of data and photos by individual scientists or agencies, and reports or introductions by insiders on the workings of administrative organizations. These are cases in which each contributor offers information from the site or their own position, or introduces URLs or documents as information sources. Naturally, experts and people concerned shared their analyses, interpretations or explanations of the islanders’ reports on the eruptions, damage, and disaster prevention measures and, in turn, frequently asked the islanders for information that was of scientific importance.

There were also numerous question-and-answer interchanges. Islanders

and people from other parts of Japan posted many of the questions, but there were also cases in which scholars or researchers made inquiries concerning topics outside their area of expertise and were answered by scholars specializing in that field. In any case, "Ramblings" fulfilled an important role as a venue for sharing information.

The expression and exchange of opinions on the message board ranged from the presentation, interpretation, and explanation of simple facts to evaluation and assertive statements. Far from being limited to the voicing of different perspectives or opinions by people concerned or experts or to discussions focusing on geological topics such as eruptions and volcanic gases, these exchanges extended to voicing personal thoughts, criticisms, and views about such social issues as how information should be conveyed, government responses to the crisis, disaster prevention practices and laws, and even methods of evacuation.

Web message boards are the ideal medium for interactive expression and exchange of views. At the same time, however, the debates that arise can cause trouble among the participants, occasionally developing into destructive or inflammatory altercations that appear to be peculiar to message boards; these can affect a board's subsequent character and direction. In that sense, the editing function exercised by removing objectionable messages is crucial and it demonstrates the administrator's editing policy.

The third type of content, using the message board as a means of communication and contact, closely resembles one-to-one interaction. Individuals use the board as a substitute for a fax or telephone to contact another individual, exchange data or consult, or to make announcements, in which the board is essentially substituted for a handbill. In the case of this disaster, the message board was used in this way to make emergency announcements although they were fewer in number and less journalistic in nature.

### **Trends in Messages by Type of Participant**

Another subject that requires further examination is the type of people using the message board. Although a truly accurate account is impossible due to the use of handle names or the failure of some to identify themselves, and the deletion of messages that prevented further investigation, the overall trends can still be discerned.

The total number of messages posted during the 71-day period (June 26 to September 4, 2000) was 3,080, with an average of 43 messages per day. Of these, 376 were deleted, leaving 2,704 messages. During this period there were 179 contributors, making the simple average of messages per person 15.

In reality, however, many people sent only one (81) or two messages (23). About 85 percent were from people who contributed 15 messages or more (26).

Participants can be broadly categorized as scholars and experts; islanders; people related in some way to the island such as those originally from the island or residents of neighboring islands; people who had experience of volcanic eruptions, such as Mt. Usu; the mass media; ordinary citizens with some knowledge of volcanoes or a strong interest in them; ordinary citizens with no specialized knowledge; and unidentified persons.

Participants in the scholars-and-experts category were not fixed. Different individuals posted messages depending on the eruption phenomenon occurring at a particular time and the degree of danger, and they represented specialists in volcanoes, geology, geophysics, or pyroclastic flows, as well as meteorology, chemistry, and pollution. Specialists in pollution science, for example, posted messages in response to postings regarding the eruptions of volcanic gas. As topics came up associated to disaster-related laws and institutions and how they had changed to suit social conditions, the type of expert appearing on the message board changed to include representatives of local government, journalists, and ordinary citizens.

A brief look at the main individuals who contributed is helpful. Hayakawa Yukio, a volcanologist and associate professor at Gunma University, was by far the largest contributor, posting 703 messages, followed by Chiba, the message board administrator, with 341 messages. Although Hayakawa has his own website, he participated actively in "Ramblings." Chiba also has other websites, and after the full evacuation of the island he started a message board named "This is Miyakejima" as a forum in which the islanders could exchange information.

These men, however, offer an interesting contrast. Hayakawa did little research on the island himself. He sought reports from the islanders and researchers and offered his interpretations and explanations, comparing the information and photos gleaned from people on the site with existing literature and elucidating the volcanic activity from various perspectives. He also freely shared his well-informed views and reasoning, which were sometimes critical of disaster-prevention measures and the government and on occasion digressed from the aims and purposes of the message board. Chiba, on the other hand, worked for an aerial survey company and firmly believed in the on-the-spot approach. He ordered aerial photographs to be taken and visited the island several times himself during the eruption for fieldwork, analysis, and picture-taking. He promptly reported his findings, sometimes online

directly from the site. Because he had a firm grasp of local conditions and the psychological state of the islanders, he was prudent in his statements and in his management of the message board.

The third largest contributor was Sadazo, the first islander to participate, with 234 messages posted between July 9 and September 4, the day he evacuated. His messages recount his observations of each eruption and the damage, reports on the islanders' psychological state, and appeals to government authorities. He played an important role in connecting the islanders with scholars and experts through the Internet, distributing handbills that urged voluntary evacuation as an insert in the local newspaper. At the same time, however, many of his messages were edited due to his often too-graphic accounts of local conditions and attacks in sometimes strong language against the authorities and others in his attempts to represent the islanders.

Other frequent contributors included Fujita, a colleague of Chiba's who served as a substitute administrator, with 93 messages, and "Pochi," a knowledgeable layman and employee of a computer-related firm, with 82 messages. Overall, scholars and researchers accounted for 54.3 percent of messages, islanders for 13.4 percent, citizens with an interest in and knowledge of volcanoes and earthquakes for 18.0 percent, and unidentified participants for 10.6 percent. Citizens with no specialized knowledge accounted for 1.4 percent, and people originally from the island or some other volcanic area such as Mt. Usu for about 1 percent, neither of which was significantly high. (See right side of figure 2.)

The above is a general picture, but the participation of certain types of contributors and the number of messages sent exhibited characteristic trends for each of the six periods of volcanic activity. Figure 2 shows the proportion of message numbers and figure 3 shows the number of new participants.

As these figures clearly indicate, during the first stage (June 26 to July 7), all participants were specialists and informed citizens, while in the second stage (July 8 to July 26) the first islander—Sadazo—participated, zealously posting messages concerning conditions on the island. Posts from Sadazo accounted for 9 percent of messages in the second stage.

In the third stage (July 26 to August 9) when mud flows were causing visible damage and people became acutely aware of the danger, the number of new islanders joining the online discussion sharply increased. Although the total number of messages posted averaged only 18 a day, 23 percent of these were from islanders.

Contrary to what the CCPVE and the JMA were saying, the volcanic activities included phenomena the islanders' had never experienced before, and as



Figure 2. Trends in Ratio of Participants to Total Postings

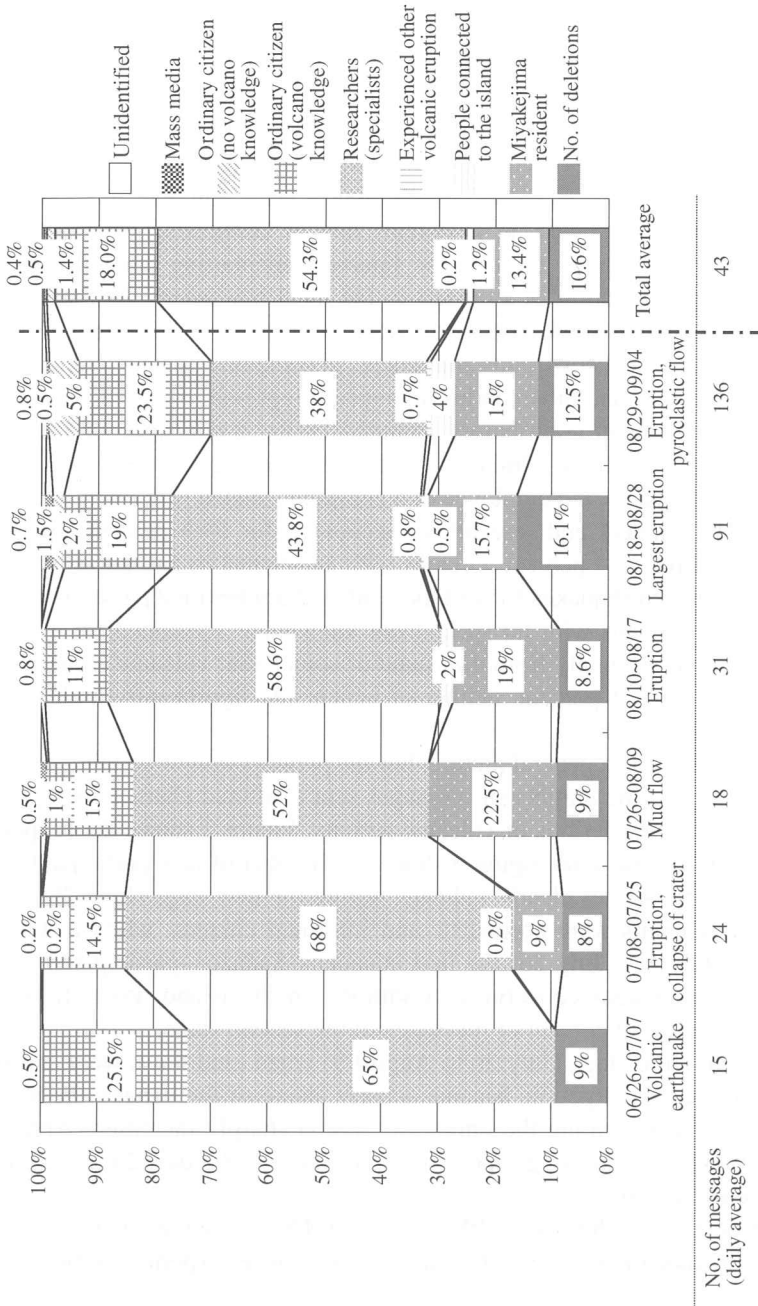
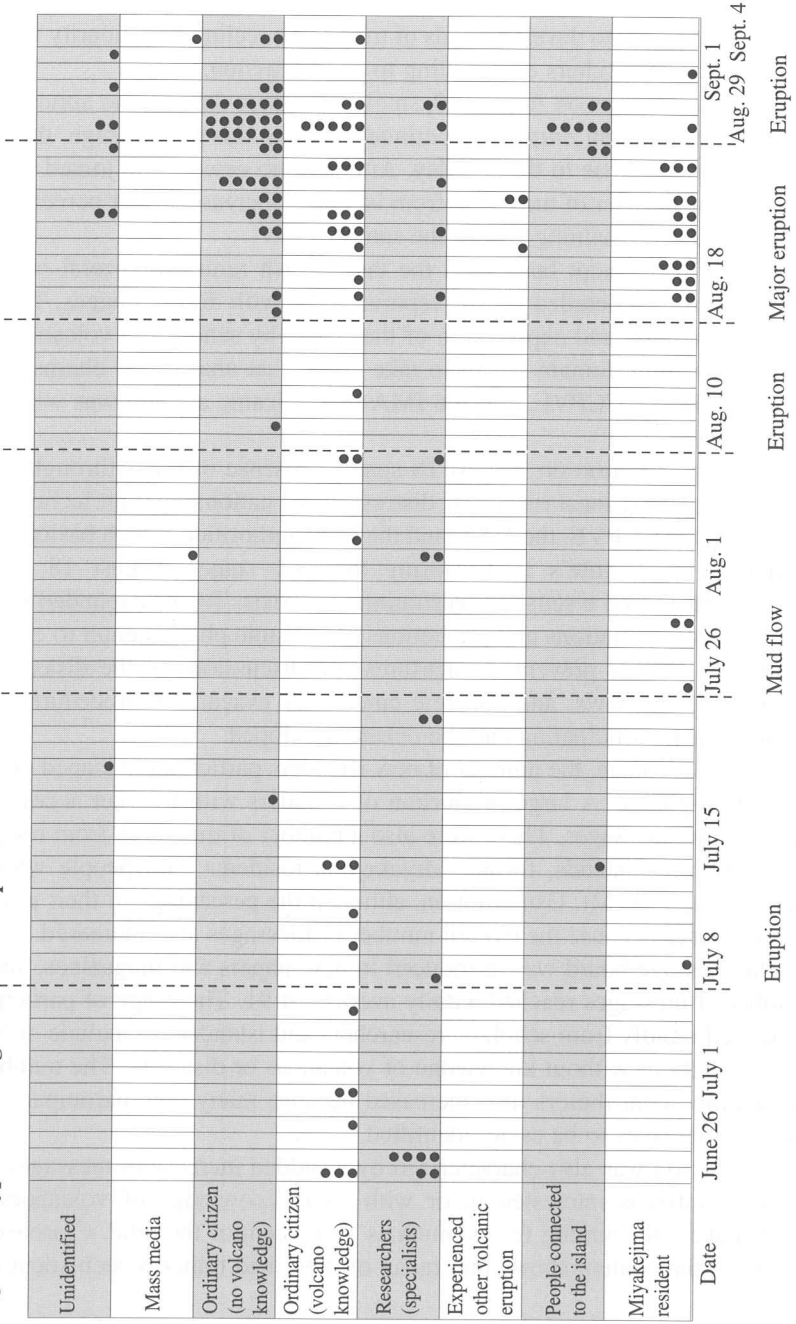


Figure 3. Types of Message Board Participants



severe earthquakes continued, local residents participating in message board discussions began to develop bonds of trust and a feeling of solidarity with the scholars and researchers contributing to the discussion.

After the eruption on August 10, smoke rose from the volcano almost every day, and intermittent eruptions continued. During this fourth stage, the number of messages rose to thirty a day. Although no newcomers joined the discussion, the number of messages from islanders increased, their percentage of total messages remaining almost the same.

Despite being kept busy with the task of ash removal, several islanders managed to post detailed on-site reports, some with digital images. Through the interpretation and explanation of these data by scholars, a volcanic eruption information domain began to take shape that challenged claims by the mass media, the CCPVE, and the JMA that volcanic activity was within the predicted range.

The large eruption on August 18 sparked a sense of crisis throughout the island, deepening local residents' distrust of the national and prefectural governments, the CCPVE, the JMA, and the local authorities, which basically followed the prefecture's lead. During the fifth stage (August 18 to 28), participants shared a sense of frustration and crisis. Topics expanded beyond scientific interpretations and predictions of volcanic phenomenon to criticism of official disaster prevention measures and discussions of the disaster prevention system, laws, and concrete emergency evacuation procedures. New people began participating and the debate developed.

In this fifth stage, the number of new islanders participating leaped dramatically to eighteen. A large proportion of islanders with Internet access were now posting messages. There were also a number of messages from residents of neighboring islands, former Miyakejima residents, and people who had lived through the Mt. Usu eruption, although the percentage of their postings was not large because the overall number of messages also increased.

The message board was introduced in newspapers and magazines, and the number of messages reached a daily average of 91. The range of participants expanded rapidly from scholars, researchers and islanders to include ordinary citizens with or without knowledge of volcanoes or disasters. The number of unidentified contributors also increased because many new participants sent too few messages to be easily identified.

This period was also characterized by a sudden increase in messages from ordinary citizens interested in or with some knowledge of volcanoes and earthquakes, accounting for as much as 19 percent of the total. Close examination of the content shows that many of these had hitherto been silent read-

ers and were moved to write by the sense of crisis. In comparison, the percentage of messages from scholars and researchers dropped to 44 percent.

During the sixth stage from the eruption on August 29 accompanied by pyroclastic flow to the evacuation of the island, this trend accelerated. Islanders who had evacuated of their own accord, former island residents, and ordinary people with or without knowledge of volcanoes continued to join in, and in the end all types of citizens were represented. On August 29 alone 282 messages were posted. That makes, through simple calculation, 12 messages an hour, or one message every five minutes. Of these, islanders accounted for 22 percent, evacuees and former residents for 3 percent, citizens knowledgeable about volcanoes for 18 percent, and ordinary citizens not so knowledgeable for 8 percent, while the percentage of academics and researchers, which had formerly accounted for the majority of messages, dropped as low as 38 percent, representing only one-third of participants.

This trend continued until the decision was made to fully evacuate the island on August 31, after which the percentage of messages from volcano-knowledgeable citizens increased. During the seven-day period prior to September 4, the total number of messages was 949, with an average of 136 messages a day. New participants continued to materialize with further developments in volcanic activities and disaster prevention measures. One other feature during this final stage was the participation of journalists and people involved with the CCPVE who had read but never contributed.

The changes in participants at each stage resemble a theatrical performance, where the appropriate actors appear on "Ramblings" with each change of act to deliver their lines in a reliable performance. This appears to be typical of the nature of web journalism.

### **Deletion and Editing Policy**

As mentioned earlier, one essential element of journalism is the editing function, meaning the evaluation and selection of information. In web journalism, editing means deletion.

The number of deletions and their ratio to the number of messages posted are as shown in figure 1. It is obvious that the number of deletions increased in correspondence with the increase in the number of messages following the eruption of August 18. Unfortunately, when it comes to the contents, it is not clear which messages or which part of which messages were deleted. Although the deleted messages are gone, traces can be found in past files. Painstaking investigation of these traces and interviews with the people involved made it possible to identify the type of content that was removed.

Although the editing policy changed somewhat as the message board grew and developed, Chiba asserts that the following types of content were consistently considered inappropriate and editing was conducted on this basis. This is corroborated by interviews with the contributors and records of messages that remain.

1. Defamatory statements against specific individuals or a specific organization.
2. False rumors as well as the false reports, mistakes, or inaccurate information liable to cause such rumors.
3. Emotional or inflammatory words or expressions such as "I'm going to die," "We'll be killed."
4. Extreme eruption scenarios or frightening scenes that, even if scientifically possible, might cause unnecessary anxiety among the islanders.
5. Appeals for group protests by telephone or other means encouraging agitation against the authorities.
6. References to sensitive issues upon which local public opinion is already divided, such as the pros or cons of building a night-landing practice airfield for U.S. Navy planes, and insider information or views concerning the already divided construction industry, or projects to rebuild the island after the disaster.

The administrator recalled that he read each message thoroughly, checking content carefully in monitoring messages to the board. Although he occasionally deleted undesirable messages without any discussion, he usually contacted the writer in advance and obtained consent. When he was in the field, he had the substitute administrator call him on his cell phone and read the contents of problem messages so that he could give instructions.

Frequent contributors such as Hayakawa and the islander Sadazo were not exempt from such editing. The professor's gloomy forecasts concerning the eruption, his sharp criticisms of the authorities and his frightening examples of evacuation cases in the past were deleted, as were Sadazo's fiercer complaints and censure of the authorities.

In the early stages, there were some criticisms of the administrator's deletions. In time, however, participants tacitly agreed with the editing policy and writers would add such comments as "This may be deleted but . . ." or "Please feel free to delete this." To ensure that their feelings were read, participants used metaphorical expressions rather than making direct statements (No. 3366). Or, when someone felt impelled to get their point across in a certain way, he might post a message knowing full well it would be deleted but aiming for that small window of time, twenty or thirty minutes, before the admin-

istrator caught it. Others used the more advanced technique of posting a headline referring readers to their own websites for details.

Although close examination reveals that some harsh words and expressions and some protests or muckraking against individuals escaped detection, it is very clear that the editing policy remained consistent throughout, and that it was accepted by the participants within the journalistic space of the message board.

### **Access Rate and Social Impact**

As there was no counter on the message board, it is not possible to accurately determine how many times the site was accessed. We can surmise, however, that the number of silent readers who did not directly participate in the interchange was high.

Already on August 26, the server line (1.5mega) handling past files was overloaded for ten minutes (No. 3507). This indicates that the site was being accessed about 10,000 times an hour, probably exceeding 100,000 hits a day. As volcanic activity progressed, the message board evolved into a unique information domain independent of the mass media and the JMA and, as this fact became known, the journalistic nature and role of the site was strengthened and its social impact further increased.

The Usuzan Net, created during the Mt. Usu eruption in Hokkaido by citizens in the disaster zone and outside, including evacuees, was incessantly accessed during that period.<sup>12</sup> Similarly, the "Ramblings" site was monitored even by members of the JMA and the CCPVE and, in the end, information from the board was used in official decision-making.

"I was given the opportunity to participate and express my opinion in the CCPVE Izu subcommittee meetings held on August 21 and 31. On August 31, I introduced data obtained from this message board (list appended). Mr. Chiba joined the meeting later and added his explanations of the consecutive photographs of Miyakejima High School and a description of conditions at the site. As a result, I believe there has been a major improvement in the committee members' comprehension of the situation. We have reached a common understanding. I would like to express my appreciation *ex post facto*." (No. 4537, September 3, 9:33, Koyama Masato)<sup>13</sup>

The broad range of the message board is also demonstrated by the number

<sup>12</sup> See *Saigai joho to media*, Part 3, Chapter 3, "Usuzan funka saigai to maruchi media" [The Eruption of Mt. Usu and the Multimedia].

<sup>13</sup> The following paper gives a detailed account of the event and problem issues: Koyama Masato, "Unsuccessful Risk Evaluation and Communication during the Crisis of the Miyakejima Volcano in August 2000," in *Kazan Funka Yochi Renrakukai kaiho* [Bulletin of the Coordinating Committee for Prediction of Volcanic Eruption], No. 78, March 2002.

of links and also the number of non-link websites that contained links to the board. While there is no knowing what it was like in the June-September 2000 period due to the absence of any records from that period, some 77 websites had links to “Ramblings” as of June 2002 (9 of these are keyword links).

Of these sites, 20 belong to researchers, including both individuals and organizations, and 4 belong to individuals or organizations related to Miyakejima, neither of which represents a very large percentage. The majority of links are with sites operated by ordinary citizens unrelated to research or the island. Specifically, 37 belong to individuals, including people with an interest in volcanoes or geology, 9 belong to senior high schools or organizations, 4 belong to businesses and 3 are message boards. Notably, of these, 2 sites belong to members of local legislative assemblies other than Miyakejima, while the originators of the remaining sites include a doctor, a confectionery shop, and a painting class. It is clear that the message board is viewed as being much broader in scope than a forum for volcanologists, geologists, or specialists in disaster prevention.

Although there are no mass media links, the message board had a major impact on established journalism in the form of newspapers, magazines, and broadcasts at the time. This is evident, for example, in a message contributed by “Genzaburo,” a former journalist.

“I have been monitoring this site since early summer. . . . This is no longer an ordinary message board. (In fact, I believe this remarkable site will become a model for the role the Internet can play and I strongly support it.) Right now, lives depend upon it.

“I covered the destruction of the Ako district during the 1983 eruption, so there are many things I would like to say, but as I want my statements to be of concrete usefulness, I am restraining myself. Even when people are denouncing the media, I am controlling myself.

“I am doing my best to inform my colleagues about the site. I’m urging them to look at it. . . .” (No. 4508).

As discussed below, the contents of “Ramblings” were frequently cited in newspaper and magazine articles and on the air, with or without giving credit to the site.

### **Relation to Conventional Mass Media**

From July to mid-August, the mass media focused their attention primarily on the neighboring islands of Kozushima, Nijima, and Shikinejima, which were rocked by successive earthquakes with a seismic intensity of low-6 on the Japanese scale, and had suffered casualties, landslides, and disruption of transportation. The majority of reporters were relocated to those sites and they

offered little coverage of Miyakejima, which had officially been declared safe and had had its emergency headquarters dismantled. What little coverage remained was based primarily on announcements from the JMA and the CCPVE, and there was no investigative reporting of those announcements through field visits to confirm the facts. Despite frequent eruptions and increasing activity in the form of falling ash and ballistic ejecta, the majority of reporting merely repeated the official JMA and CCPVE view that “volcanic activity will settle into the predicted range.” Like the government authorities, the media felt little sense of crisis.

In contrast to the commotion that had followed the Mt. Usu eruption in March of the same year, even the largest Miyakejima eruption on August 18 received very little media attention, despite the fact that it exceeded Mt. Usu’s in scale. Many of the reporters dispatched to the site were inexperienced, with little knowledge of volcanoes or geology. Despite the fact that stones were raining down, there was almost no one who sufficiently understood the phenomena witnessed to accurately convey the seriousness of the situation. Most disaster reports from the island focused on the islanders’ daily lives, showing the outward appearance of their lives and feelings, such as the task of clearing away the ash, which is almost unrelated to the real purpose of such reports. Although the islanders participating in the message board gave detailed explanations and impressed upon some of the reporters the seriousness of the situation, this information rarely found its way into articles. The position of the mass media and the content of the news they reported were frequently reviewed and critiqued on the message board.

On August 21, the CCPVE verified that ballistic ejecta large enough to cause fatal injury had fallen on the local community during the eruption on the 18th, and on August 24 it retracted the declaration of safety. From this time onward, the tone of the media changed, and reporters began to turn their gaze to the Internet and the information provided by the islanders.

The account in “Ramblings” of the pyroclastic flow during the eruption of August 29 far surpassed the information provided by the JMA announcement or mass media reports, and the conclusive photographs from the board were published in major newspapers, providing the trigger that led to complete evacuation.<sup>14</sup>

Newspapers, television and even weekly magazines, in which news is nec-

<sup>14</sup> Fukushima Takashi, “Miyakejima kara no SOS: Intanetto ga zento-hinan no hikigane ni” [SOS from Miyakejima: The Internet Triggers Full Evacuation of the Island], *i-Report*, No. 4, JNN Media Senryaku Kaigi Hodo Joho Bunkakai Jimukyoku [JNN Media Strategy Committee, Media Information Section Meeting Office], October 2000.



essarily delayed, collected material for their stories from “Ramblings,” and Hayakawa’s websites and began publishing information that did not represent the official line of the JMA or the government authorities.

### **Participation of the Islanders**

One of the remarkable features of “Ramblings” was that it created a common forum for the exchange of information between scholars and specialists on the one hand, and islanders, on the other, the latter reporting on the eruption and the extent of the disaster from the field. Here I will examine the position of the participating islanders in island society and the direction of message board information and its effect on local society. First, however, let us look at the spread of Internet access on Miyakejima.

The island has a population of approximately 3,800 people (1,900 households) and, judging from reports by the people concerned, between 50 and 100 people, but probably closer to 50, had Internet access at the time. There were a little over ten websites, mostly focused on tourism, including those belonging to the Chamber of Commerce, the Tourism Association, the local government, guesthouses, a scuba diving shop, and souvenir shops, and most had ordinary telephone dial-up connections, although a few had very recently acquired ISDN access.

Computer education had already been launched in the elementary, and junior and senior high schools, but the schools did not have Internet access. Although the national rate of access at the time was 25 percent of all households, in Miyakejima, use of personal computers and the Internet was just beginning to spread.

The majority of users were young men in their twenties to forties who belonged to the Junior Chamber of Commerce. They were broadly divided into island residents who had moved in from elsewhere and native islanders. The former had either been temporarily transferred to the island for work, such as school teachers, company employees, and civil servants assigned to the Tokyo metropolitan government branch office in Miyakejima, or had settled permanently on the island to run such businesses as guesthouses, flower cultivation, and shops, while the latter were born and raised on the island, including some who had left and come back. Native island residents had a higher degree of involvement in the local community. More than half the population was over fifty, and in a rural society where the influence of the original village community was still strongly felt, the notion of communicating with outsiders via the Internet was initially considered strange and unfamiliar by many.

But when the mass media and the government authorities failed to grasp or

convey the situation accurately and the islanders were exposed to the dangers of volcanic eruption without adequate information, news obtained from the Internet began enter their lives, transmitted by word of mouth or sometimes as printed material. Information conveyed orally sometimes sparked false rumors such as “the island will split in two” or “the island will sink,” but in a village society where solidarity was strong these rumors did not escalate into hysteria.

The island’s introduction to the Internet was very abrupt, almost as if village society had been forcefully dragged into cyberspace. This made operation of the message board difficult and was one reason why a gap later appeared between the island residents who participated in “Ramblings” (or village society as a whole) and the message board.

From September 4, the villagers began new lives as evacuees in a completely different environment. Many people anticipated that the Internet would serve as an effective means of communication for the islanders buried in the anonymity of metropolitan Tokyo, and numerous websites, message boards, and mailing lists were established by the Miyakejima government, islanders, and support groups. People who had contributed to “Ramblings” participated significantly in some of them. In the beginning, many messages offered suggestions and proposals concerning the future of the village and reconstruction of the islanders’ lifestyles, but a feeling of estrangement gradually developed between the participants, the islanders, and the supporters concerning concrete solutions<sup>15</sup> and lively debate gradually dwindled away until the sites came to function primarily as a venue for official announcements.

The heightened emotions bared on the Internet during the eruption turned out to be out of sync with ordinary life and perceptions. The feeling of solidarity that had emerged during the time of crisis and frustration began to fade and daily reality and personal interests came to the fore. Two years later some islanders even regard the Internet warily and express a reluctance to participate on message boards.

If they do contribute to another message board in future, their style of participation and the way they express themselves will most likely have changed. Participation in “Ramblings” was, for many, the beginning of web literacy.

The formation and evolution of “Ramblings” identified an important issue: discord and shock can occur when a virtual, online community becomes connected with real society, particularly in the form of a local community.

<sup>15</sup> Hoshikawa Tsuyoshi, “Miyakejima funka saigai de no joho shien katsudo no tenkai to kadai” [Development and Issues in Information Support Activities during the Miyakejima Eruption], in *Dai-sankai Nihon Saigai Joho Gakkai kenkyu happyo yokoshu* [A Collection of the 3rd Japan Disaster Information Society Research Draft Manuscripts], 2001

## CONCLUSIONS

Here let us consider the potential, limitations, and role of web journalism in comparison with newspapers, broadcasts and other established forms of mass media, as well as the effect web journalism has on contemporary society.

In their messages to the board, several people referred to the role "Ramblings" played and its significance (No. 4940, No. 4978). Chiba, the administrator, referred to it as "an interactive mini-media. When it functions smoothly, it can achieve what the established media have never accomplished." (No. 2264) He identified six conditions necessary for smooth functioning: 1. ease of access from anywhere, 2. speedy transmission comparable to that of the mass media, 3. image quality on par with color printing, 4. reliability equivalent to a scientific journal, 5. permanent stock, and 6. an unchanging URL. Message boards, he claims, can easily satisfy these conditions.

The technical conditions delineated above will most likely be realized in the near future. There is considerable controversy, however, about "reliability equivalent to a scientific journal." In reality, the level of information found on message boards can be very low, sometimes dismissed as "outhouse graffiti," and generally considered a mix of good and bad. "Ramblings" was criticized on this ground as well.<sup>16</sup>

Journalistic editing can be broadly divided into two types: active editing such as that found in newspapers and broadcasting, in which information is arranged within a fixed physical space and time frame, and passive editing, characteristic of the message board, in which deletion is used to ensure compliance with the minimum standard.

It is true that the information on "Ramblings" varied in quality, level, and degree of relevance or importance, including some content that barely escaped deletion. One reason for this is the high level of openness, which contrasts with a mailing list. Virtually anyone can participate. Another reason is that message boards combine several convenient functions: they offer information, provide a forum for expression and exchange of views, and are a simple interactive means of communication.

Uneven quality is an inevitable feature of message-board web journalism because of the passive nature of editing. Passive editing also means that the information-gathering process, including offering and interpreting data and exchanging opinions, as well as the entire editing and organization process are

<sup>16</sup> Same as Note 14. He writes "It's like a stew where you cannot tell just by looking whether the ingredients in the pot are meat or fish or even vegetables, and the more ingredients you add, the further down the most important messages sink in the pot."

exposed to view. Participants and readers can thus pursue the information-gathering process and evaluate the data. In a sense, they themselves are expected to perform the active editing functions of selecting and discarding information, editing and organizing. Participation in web journalism, both posting and reading messages, demands a certain degree of web literacy, including knowing how to interact online and how to extract important information. Web journalism differs fundamentally in both structure and form from newspaper or broadcasting journalism, and these differences reflect both its great potential and its severe limitations.

Another characteristic of web journalism demonstrated by a message board is the interactive (n-to-N) nature of communication, information exchange, and transmission as opposed to the unidirectional 1-to-N communication characteristic of conventional mass media. This overturns the very foundation of mass communications theory in which the sender-receiver structure was considered essential. In web journalism anyone, at any time, can be both receiver and sender. This opens up new horizons untouched by other forms of journalism and mass media.

Professional journalists, or groups of journalists, who were so essential to the established mass media, are no longer necessary. In web journalism, ordinary citizens, unfettered by corporate ties or the market pressures that tend to control mass media, can share their ideas, views, and comments about their own field of specialization or about daily life from the layperson's perspective. This domain can be created and maintained by people with some expertise and civic consciousness, as long as they have some journalistic sense.

A shared editorial policy, that is, a common standard for deleting content, is one aspect of this journalistic sense. This requires, at the same time, a public consciousness, an awareness of a shared civic-mindedness that guides the expression of personal views.

The established mass media employ professional journalists, have a stable editing system, and present the news comprehensively and solely one-to-N. In contrast, web journalism as seen in message boards has created a world of interaction among ordinary people about specialized subjects, a domain of n-to-N expression in which there is no distinction between senders and receivers.

In the wide picture of information distribution, information of various kinds flows in intermingled layers among all forms of mass media and journalism, mutually stimulating and sustaining them in a fine-tuned relationship. The advent of web journalism can be expected to introduce a new order, structure, and relationship into the world of journalism.

Finally, a subject that must be considered is the impact of web journalism

on contemporary society and on the relationship between society and the individual. In the case of Miyakejima, making a direct connection between an off-shore island society and the rest of the nation and the world via the Internet was significant. The sudden leap from community relationships in local society, where everyone's face was familiar and there was regular, personal interaction, to relationships with the outside world via the Internet created a form of culture shock.

In contemporary society, we are constantly in contact with the rest of the world via the mass media. Life as an individual within the masses does not involve any major conflict or incompatibility with life as the individual within the community at the same time. Unlike the established mass media, however, web journalism does not allow the individual participant to remain anonymous within the masses. Participants need some degree of media literacy, or clarification of their position about values and culture. Both web communities and real communities demand proof of individual identity.

Broadband technology has been the recent focus of attention in the mass media and it is currently undergoing rapid development and dissemination. The main focus, however, tends to be on its technological aspects and new business models utilizing it. There are both pros and cons to a broadband Internet, but it is affecting lifestyle awareness and values, and it promises to be influential as a media and communications tool for building a new society and culture.

"Ramblings" transformed the very foundation of the sender-receiver structure, creating a world of journalism unlike anything previously known. At the same time, it transcended journalism in the conventional sense, leaving an important imprint on local society and its members and suggesting far-reaching implications that could usher in a new era and society.

Just as newspapers helped to shape civil society, and television spawned mass society, the form of journalism that is emerging in the Internet era has the power to bring forth a "post-mass society."

### **Acknowledgement:**

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Yoshimune), who played an important role in the message board discussion between the islanders and researchers at the time of the 2000 eruption, died of cancer on March 16, 2003. I would like to dedicate this study to “Sadazo,” and sincerely regret that he did not live to see its publication.

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