The International Association of Geomorphologists

Fifth International Conference on Geomorphology

organized by
Japanese Geomorphological Union (JGU)

SUMMARY OF PROCEEDINGS

Chuo University, Korakuen Campus
Tokyo, Japan
August 23-28, 2001
The International Association of Geomorphologists

Summary of Proceedings of
the Fifth International Conference on Geomorphology

organized by the Japanese Geomorphological Union
at Chuo University, Korakuen Campus
Tokyo, Japan

August 23-28, 2001

edited by the Organizing Committee of the 5th ICG,
Japanese Geomorphological Union

(January 2002)
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Gate to the venue of the Conference (Korakuen Campus, Chuo University).

Entrance of the venue.

Lobby of the venue.
Registration desk.

Travel desk.          Dr. E. Yatsu, the oldest participant, and Dr. T. Oguchi who designed the poster and T-shirt of the 5th ICG.

Welcome party sponsored by the JGU.
Opening ceremony.

Opening address by Prof. O. Slaymaker, the president of the IAG.

Welcome address by Prof. T. Sunamura, the president of the JGU, with Prof. Koji Suzuki, the president of Chuo University.

Participants in the Opening ceremony.
Prof. D. Brunsden, Mrs. & Prof. R. Dikau, Prof. V. R. Baker, Prof. S. A. Schumm and other colleagues at the First General Assembly.

Prof. T. Yoshikawa, new IAG senior fellow.

Prof. S.A. Schumm, new IAG senior fellow, made a special lecture.

Session room.
Symposium room.

Poster session room.

Party of young geomorphologists
Toast by Prof. H. J. Walker in the reception at Akasaka Prince Hotel.

Reception room.

Japanese sake served by Dr. Y. Kurashige, secretary of the JGU, at the reception.

Japanese taiko (drum) show at the reception.
Works of flower arrangement on 26 August 2001

Lesson of flower arrangement on 26 August 2001
Explanation of tea ceremony on 26 August 2001

Sample tea in tea ceremony on 26 August 2001
Closing ceremony with past (right) and new (left) members of the IAG executive committee.

Address by Prof. M. Panizza, the new president of the IAG.

Announcement of Jan De Ploey Prize by Prof. A. Pissart.

A finale of closing ceremony.
Final work of Prof. O. Slaymaker, the president of the IAG, at the farewell party.

Farewell party.

All student supporters wearing T-shirts with the 5th ICG logo.
Preface

This is a summary of proceedings of the Fifth International Conference on Geomorphology (5th ICG) of the International Association of Geomorphologists (IAG). The 5th ICG was organized by the Japanese Geomorphological Union (JGU) according to the agreement at the meeting of national delegates held at the Fourth International Conference on Geomorphology at Bologna, Italy, on 30 August 1997, and was held at Korakuen Campus, Chuo University, Tokyo, Japan, 23 - 28 August 2001. The Pre- and Post-Conference Field Trips and One-day Excursions were also held in Japan.

Final number of registrants were 644 who represented 53 countries and regions, including regular, student and accompanying members. There were fewer participants but more countries than at the past ICG’s: e.g. 662 colleagues from 41 countries at Hamilton in 1993, and 937 colleagues from 50 countries at Bologna in 1997. There were fewer participants because of the geographical location of Japan in the world of geomorphologists, whereas the larger number of countries resulted from the steady development of the IAG.

Scientific programs included special lectures (2 titles) and plenary lectures (6 titles), sessions (14 themes) and symposia (21 themes). Papers presented in the forms of oral and poster were 515 titles, including special and plenary lectures. About 60% of the papers were presented in the symposia. The programs, abstracts, author index as well as organization list and participant list were published as a special issue of the Transactions, Japanese Geomorphological Union (TJGU), Vol. 22, No. 4, pp. 441-826 (August 2001).

The papers presented at the 5th ICG will not be published in the IAG proceedings series. They will be separately published in a special issue of each symposium and/or related session in the five professional journals of geomorphology recognized by the IAG as well as in other journals and monographs with special reference to the 5th ICG. A list of planned publications as of January 2002 is shown in the summary of proceedings.

To make this summary of proceedings helpful for preparing the IAG international conferences in the future, emphasis is placed on the organization of the 5th ICG in particular rather than on the scientific programs and discussions. This is because the programs and abstracts were already published in the above special issue of TJGU and the main papers presented will be published as mentioned above. In addition, this summary includes a brief report of the Questionnaire for Professional Contributions to Society as Geomorphologists which was sent out
during the 5th ICG.

The main difficulty in organizing the 5th ICG was the financial environment following the recent economic crisis in Japan, although the JGU’s policy of “Lowest Cost and Highest Quality” was applied to the 5th ICG. The Organizing Committee had great difficulty in collecting promised contributions from the geomorphology-related enterprises such as construction, forestry, disaster prevention and various consultants. Fortunately, however, many JGU members personally donated more than 10% of the Conference budget.

The IAG Sixth International Conference on Geomorphology will be held in Zaragoza, Spain, 2005, and the next IAG Regional Conference on Geomorphology will be held in Mexico City, Mexico, 2003. I wish both Conferences success.

Finally, on behalf of the Organizing Committee, I would like to express my sincere thanks to Prof. Olav Slaymaker, the president of IAG, and Prof. H. J. Walker, the first IAG senior fellow, who had made every effort and great cooperation for the 5th ICG from the beginning of the preparation to the closing. Thanks should be extended to all participants of the 5th ICG and all members of the IAG Executive committee for helpful suggestions and kind cooperation to make the 5th ICG successful, to many organizations and donors for financial support, and to many Japanese scientific societies for academic sponsorships, as listed in this summary. Special thanks are due to Chuo University for providing the venue and financial support to the 5th ICG.

Takasuke Suzuki (Chuo University, Tokyo, Japan)
Editor of this summary of proceedings and
Chair of the Organizing Committee of the 5th ICG
DIGEST OF
THE FIFTH INTERNATIONAL CONFERENCE ON GEOMORPHOLOGY

Sponsor: The International Association of Geomorphologists (IAG).
Host organization: The Japanese Geomorphological Union (JGU).
Venue: Chuo University, Korakuen Campus (Faculty of Science and Engineering),
1-13-27, Kasuga, Bunkyo-ku, Tokyo 112-8551, Japan.
Number of rooms used daily in the venue throughout the Conference: 38 rooms.
Number of final registrants: 644 persons from 53 countries and regions, including
student and accompanying persons.
Registration fee:

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<th>Description</th>
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<th>After January 1, 2001</th>
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<td>Farewell party</td>
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Number of scientific presentations: 515 titles (2 special lectures, 6 plenary lectures,
216 titles in 14 thematic sessions, and 291 titles in 21 symposia, including oral
and poster presentations).
Publication: The Abstracts of Conference Papers (386p.) was published as a special
issue of Transactions, Japanese Geomorphological Union (TJGU), including the
Organizations, Programs, Abstracts, Author index and Participant list. The
Abstracts and a reprint of the Programs were distributed through the Conference
bag on 23rd August 2001.
Grants: The 5th ICG Grants were provided for 35 colleagues, and the IAG Grants
for Young Geomorphologists were provided for 15 young colleagues. The sum of
the Grants provided by the Organizing Committee was equivalent to about one
third of the total income from the registration fee.
Field trips: Pre-conference field trips were 3 courses with a total of 45 participants,
Post-Conference field trips were 5 courses with a total of 107 participants, and
One-day excursions were 8 courses with a total of 205 participants.
Social events: We enjoyed the Welcome party sponsored by JGU at the Venue, the
Reception with good foods and drinks, Japanese taiko (drums) show and
landform slide display on the wall at Akasaka Prince Hotel, Flower arrangement,
Tea ceremony, and Farewell (Sayonara) party at the Venue, in addition to Party of
young geomorphologists, outside the Venue.
Conference budget (as of January 2002): about 40 million Yen (excluding field-trip
costs). The venue and facilities were provided free of charge by Chuo University.
THE SPONSOR AND THE HOST ORGANIZATION

The sponsor:
The International Association of Geomorphologists (IAG)

Executive committee (1997-2001)
President: Olav Slaymaker (Canada)
Vice-President: Mario Panizza (Italy)
Secretary General: Piotr Migon (Poland)
Treasurer: Denise L. Reed (USA)
Publications Officer: Christine Embleton-Hamann (Austria)
Elected Members: Albert Pissart (Belgium), Bernard Dumas (France)

Coopted Members:
Dietrich Barsch (Germany), Mohamed Tahar Benazzouz (Algeria),
Ana L. Coelho Netto (Brazil), Richard D. Dikau (Germany),
Andrew S. Goudie (UK), Ole Humlum (Denmark),
Lawrence K. Jeje (Nigeria), William Locke (USA),
Takasuke Suzuki (Japan), Ying Wang (China),
Paul Williams (New Zealand), Zbigniew Zwolinski (Poland)

IAG Senior Fellows:
1989: Harley J. Walker (USA),
1993: Hanna Bremer (Germany), Ross Mackay (Canada),
1997: Denys Brunsden (UK), Richard Chorley (UK), Luna Leopold (USA),
2001: Stanley A. Schumm (USA), Torao Yoshikawa (Japan)
The host organization:
The Japanese Geomorphological Union (JGU)

Executive committee (2001-2002)
President: Tsuguo Sunamura (Osaka Univ.)
Councilors: Masahiro Chigira (Kyoto Univ.), Kazuomi Hirakawa (Hokkaido Univ.), Shuji Iwata (Tokyo Metropolitan Univ.), Kenji Kashiwaya (Kanazawa Univ.), Yoshimasa Kurashige (Univ. Shiga Pref.), Yukinori Matsukura (Univ. Tsukuba), Takahisa Mizuyama (Kyoto Univ.), Futoshi Nakamura (Hokkaido Univ.), Takashi Oguchi (Univ. Tokyo), Hiroo Ohmori (Univ. Tokyo), Takashi Okimura (Kobe Univ.), Kazuo Okunishi (Kyoto Univ.), Yuichi Onda (Univ. Tsukuba), Kyoji Saito (Saitama Univ.), Etsuro Shimokawa (Kagoshima Univ.), Tsuguo Sunamura (Osaka Univ.), Hiroshi Suwa (Kyoto Univ.), Takasuke Suzuki (Chuo Univ.), Ichiro Takeda (Kyoto Univ. of Education), Toshikazu Tamura (Tohoku Univ.), Yukiya Tanaka (Fukui Univ.), Eiji Tokunaga (Chuo Univ.), Takaaki Uda (Ministry of Land, Infrastructure and Traffic), Masatomo Umitsu (Nagoya Univ.) and Shuichiro Yoshinaga (Forestry and Forest Product Research Institute).
Auditors: Mieko Sonoda and Masayuki Toyoshima.
Editorial Board: Yukinori Matsukura (Chief), Kazuhsa Chikita, Masahiro Chigira, Ian S. Evans, Masashige Hirano, Kenji Kashiwaya, Norikazu Matsuoka, Futoshi Nakamura, Takashi Oguchi, Hiroo Ohmori, Yuichi Onda, Richard J. Pike, Tsuguo Sunamura, Shozo Yokoyama and Shuichiro Yoshinaga.
Database Staff: Masahiro Chigira (Chief), Toshitaka Kamai, Kazuo Okunishi, Maki Tsujimura and Shuichiro Yokota.
Planning Staff: Yukiya Tanaka (Chief), Kaoru Kashima, Futoshi Nakamura and Yoon Soon Ock.
Liaison Staff: Takashi Okimura (Chief), Takashi Fujita, Hiroshi Kadomura, Setsuo Okuda, Norio Oyagi, Takasuke Suzuki and Yoshinori Tsukamoto.
Meeting Staff: Kyoji Saito (Chief), Sumiko Kubo, Masatomo Umitsu and Kazuko Urushibara-Yoshino.
Accountants: Ichirou Takeda (Chief) and Keiji Mizuno.
Secretarial Staff: Yoshimasa Kurashige (Chief), Takashi Saito, Hidekazu Tsujimoto and Shuji Yamada.

OFFICE: THE JAPANESE GEOMORPHOLOGICAL UNION
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e-mail: jgu@slope.dpri.kyoto-u.ac.jp
Home page: http://wwwsoc.nacsis.ac.jp/jgu/
The Organizing Committee of
the Fifth International Conference on Geomorphology, Tokyo, 2001

Chair: Takasuke Suzuki (Chuo Univ.).

Secretariat: Kenji Kashiwaya (Secretary general, Kanazawa Univ.), Michael D. Brown (Chuo Univ.), Yoshio Hara (Taisho Univ.) Kaoru Kashima (Kyushu Univ.), Sumiko Kubo (Waseda Univ.), Yoshimasa Kurashige (Univ. Shiga Pref.), Takashi Oguchi (Univ. Tokyo), Yuichi Onda (Univ.Tsukuba), Hiroshi Shimazu (Rissho Univ.), Koji Suzuki (Chuo Univ.) and Yukiya Tanaka (Fukui Univ.).

Liaison: Michio Nogami (Chief, Nihon Univ.).

Finance: Takashi Okimura (Chief, Kobe Univ.) and Takaaki Uda (Ministry of Land, Infrastructure and Traffic).

Treasurer: Kyoji Saito (Chief, Saitama Univ.), Shuji Iwata (Tokyo Metropolitan Univ.) and Tetsuya Waragai (Nihon Univ.).

Sessions: Tsuguo Sunamura (Chief, Osaka Univ.) and Hiroo Ohmori (Univ. Tokyo).

Symposia: Kazuo Okunishi (Chief, Kyoto Univ.), Atsumasa Okada (Kyoto Univ.), and Yugo Ono (Hokkaido Univ.).

Venue: Eiji Tokunaga (Chief, Chuo Univ.), Shunji Ouchi (Chuo Univ.) and Ken-ichi Takahashi (Chuo Univ.).

Excursions: Toshikazu Tamura (Chief, Tohoku Univ.), Kazuomi Hirakawa (Hokkaido Univ.) and Takeei Koizumi (Tokyo Gakugei Univ.).

Publications: Yukinori Matsukura (Chief, Univ. Tsukuba), Masatomo Umitsu (Nagoya Univ.) and Nobuyuki Yonekura (Univ. Tokyo).

Social Events: Masamu Aniya (Univ. Tsukuba) and Kazuko Urushibara-Yoshino (Hosei Univ.).

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e-mail: takas@kc.chuo-u.ac.jp Fax: +81-3-3817-1880
ACKNOWLEDGEMENTS

On behalf of the International Association of Geomorphologists (IAG) and the Japanese Geomorphological Union (JGU), the Organizing Committee of the Fifth International Conference on Geomorphology (5th ICG) would like to express our sincere appreciation to all organizations and individuals listed below for financial, academic and material support to make the 5th ICG successful.

Financial sponsorships:
Ministry of Education, Culture, Sports, Science and Technology
Commemorative Association for the Japan World Exposition (1970)
Fukutake Science and Culture Foundation
Tokyo Convention and Visitors Bureau
Chuo University.

Academic sponsorships:
The Association of Japanese Geographers
Geographical Information System Association
Geographical Survey Institute
The Geological Society of Japan
Hydrographic Department of Japan
Japan Association of Quaternary Research
Japan Society of Civil Engineers
Japan Society of Geoinformatics
The Japanese Forestry Society
The Japanese Geotechnical Society
Japan Society of Engineering Geology
Japan Society of Erosion Control Engineering
The Japanese Society of Limnology
The Japanese Society of Snow and Ice
The Oceanographical Society of Japan
Seismological Society of Japan
Tokyo Geographical Society
The Volcanological Society of Japan

Donors:
Enterprises and Organizations:
Kyowa Consultants, Co. Ltd., Isebu Printing Co. Ltd., Sozosha Publisher Co.,

**Individuals:**

In addition, a number of JGU members provided a lot of contributions by payment of registration fees after January 2001. Further it is natural but should be noted that all members of the organizing committee and all leaders of field trips and excursions provided their own great expenses for preparing and holding the 5th ICG.

**Material supports:**
Chuo University, Bunkyo-ku Office, Onko Maezuru (Master of flower arrangement), Sohan Araya (Master of tea ceremony), Eiji Tokunaga, Yoshimasa Kurashige, Takayuki Ishi, Kazuo Okunishi, Shozo Yokoyama, Yukinori Matsukura, Masatoshi Yoshino and Kazuko Urushibara-Yoshino.

Finally, student supporters should be appreciated for their positive and powerful help for organizing the 5th ICG successfully.
PREPARATION

Proposal

The first proposal from the Japanese Geomorphological Union (JGU) to the International Conference on Geomorphology was offered at the 3rd ICG at Hamilton, Canada, 1993, but it failed. The second proposal to the 5th ICG was accepted at the Meeting of National Delegates at Bologna, Italy, 1997. Both proposals were very simple but were presented well enough to demonstrate the JGU’s scheme for ICG, printed on both sides of A4 size paper. The second proposal appeared in Transactions, Japanese Geomorphological Union (TJGU), Vol. 18, pp.340-342 (1997).

Organizing Committee

After the decision to hold the 5th ICG in Tokyo, 2001, the Japanese Geomorphological Union established the Organizing Committee, as shown above. Meetings of the Organizing Committee had been held 12 times before the Conference in addition to numerous sub-committee meetings. Prof. Olav Slaymaker, the president of IAG, joined in the Sixth meeting held at Chuo University (the Venue), Tokyo, on 11 August 2000 and made useful suggestions to the Organizing Committee.

Official Agencies


Publications before the Conference

First circular with a preliminary registration form was distributed in February 1999 to around 5,000 colleagues listed in the IAG directory of geomorphologists (1997 edition) by mail and on the 5th ICG web site. The first circular appeared in Transaction, Japanese Geomorphological Union (TJGU), Vol. 20, No.1, pp.51-55 (January 1999). The main points of the first circular were presented through the IAG Newsletter and IAG-GEOMORPH list (mailing list).

Second circular (42 pages) with full registration details and firm prices was sent in February 2000 to all colleagues who returned the preliminary registration
form in electrical form. However, about 100 hard copies were sent by airmail to all colleagues who could not receive them electronically. The second circular was printed in the TJGU, Vol.21, No.2, pp.113-154 (April 2000). The main points were presented through the IAG Newsletter and GEOMORPHO list.

**Third circular** was printed in the TJGU, Vol. 22, No. 2, pp. 105-164 (April 2001). A hard copy of the Third circular was sent in April 2001 by airmail and on the 5th ICG web site to all colleagues who had completed advance registration. The third circular contained the provisional program of papers and posters, listing them by title and name of presenter with the day and time of presentation, and final details of field trips, travel services, advice on currency exchange, details of meal facilities, and firm (final) prices for all accommodations, etc. The main points were presented through the IAG Newsletter and GEOMORPHO list. The final programs were listed on the 5th ICG web site in late July 2001.

A volume of *Abstracts of Conference Papers* was published as a special issue of TJGU, Vol. 22, No.4, pp.441-826 (August 2001). It contained: 1) Organizations of the conference, 2) Time and venue table for daily schedule, 3) Programs with the names of chairs, room, time and style (oral/poster) of each presentation, 4) Abstracts, 5) Author index and 6) Participant list. The special issue and a reprint of the Programs were included in the Conference bag, which was distributed at the registration desk on 23rd August 2001.

**Guidebooks for field trips** were not published in a combined volume but prepared separately for each course of the Pre- and Post-Conference field trips and One-day excursions by the leaders. This is because the number of applicants for each course was fewer at the deadline of application (31 March 2001: final date for receipt of balance of field excursion costs), as described in the chapter of Field Trips. Therefore, most of the leaders had wondered about the possibility for holding their field trips and hesitated to prepare the guidebooks. Thus, the Organizing Committee was obliged to give up the publication of a combined volume of guidebooks before the Conference.

**Venue**

The Venue of the 5th ICG was Korakuen Campus (Faculty of Science and Engineering), Chuo University, located on a terrace in the center of Tokyo. The campus was very convenient to get to and go around the Tokyo area, within easy access (5 to 15 minutes walking distance) from three stations of two railway lines and four subway lines.

Two buildings connected with an aerial covered passage on the third floors were used as the Venue of the 5th ICG. The 38 rooms of different types were used throughout the Conference. All rooms were air-conditioned and well equipped for
scientific presentations. Sizes, numbers and main uses of the rooms were as follows:

1) Largest lecture theater (about 500 seats for regular use): a room for opening and closing ceremonies, general assemblies, and special and plenary lectures.
2) Large lecture theater (a. 200 seats): 8 rooms for plenary lectures, symposia, sessions, council meetings, and meeting of young geomorphologists.
3) Middle classroom (a. 120 seats): 3 rooms for symposia and sessions, 2 rooms for free lounge, and a room for the Conference Desk (registration, trips, etc.).
4) Small classroom (a. 100 seats): 8 rooms for poster presentation, 8 rooms for exhibitions, 2 rooms for official use, a speaker ready room and a spare room,
5) Meeting room (a. 65 seats): for the IAG Headquarters, flower arrangement and tea ceremony.
6) Small meeting room: for the Organizing Committee Headquarters.
7) Computer Terminal Room: available freely for 5th ICG participants.
8) Lobby: for Information boards.

In addition, the cafeteria “SUEHIRO” (about 300 seats) remained open throughout the Conference for lunch, and welcome and farewell parties. Institute of Geosciences had backed up the participants, providing services for telephone, copy and e-mail. The school infirmary remained open throughout the Conference, but fortunately nobody knocked on the door.

Conference Bag

A tote bag with the 5th ICG logo contained:

1) Abstracts of the Conference Papers, a special issue of TIGU (386 p.), including Venue guide map, Organization, Programs, Abstracts, Author index, Participant list, and Introduction to JGU.
2) Reprint of the Programs (52 p.) for convenience.
3) IAG Newsletter, No.18 (3/2001).
5) Nameplate.
6) Invitations for Welcome, Reception and Farewell parties.
7) Direction to and from the venue of Reception.
11) Announcements from Zeitschrift für Geomorphologie, Géomorphologie, Catena, and International Association of Hydrological Sciences.
REGISTRATION

Preliminary registrations

Preliminary registrations were only 448 colleagues from 55 countries and regions as of 1 July 1999 (cf. First Circular was sent in February 1999). However, after the distribution of the Second Circular in February 2000 on our Web site, registrations had increased step by step, making the total 646 colleagues from 62 countries and regions as of 1 August 2001. On site registration was accepted at the Conference desk at the venue throughout the Conference.

Registration fee

Registration fee was informed in the Second Circular as listed below and was not changed until the closing of the Conference. The exchange rate was around US$1 = JPY 124.

<table>
<thead>
<tr>
<th>Description*</th>
<th>By December 31, 2000</th>
<th>After January 1, 2001**</th>
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<tr>
<td>Farewell party</td>
<td>JPY3,000</td>
<td>JPY3,000</td>
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* Regular and student registrations include participation in all academic programs, volume of abstracts with programs, author index and participant list, welcome party, reception, and right to submit abstracts. Accompanying person registration includes participation in all academic programs, welcome party, and reception.

** Final date for advance registration was 30 June 2001.

Final registrations

Final registrations with full payment were 644 persons (including student and accompanying persons) from 53 countries and regions as of 28 August 2001. Number of registrants, as well as number of abstracts submitted, from each country and region is listed on the next page.

It is natural as the host country but noticeable that Japan occupied about 46% of the final registrations and about 30% of the abstracts submitted. It was wonderful for the development of IAG in the future that we could welcome 95 graduate students (42 from overseas and 53 from Japan) who occupied 14.8 % of the total registrants. In addition, absentees among registrants were 39 persons or 6% of the final registrations.
Numbers of the registrants and the abstracts submitted from each country and region.

<table>
<thead>
<tr>
<th>Country &amp; region</th>
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The Fifth ICG Grants

The Organizing committee had announced in the First and Second Circulars to provide the 5th ICG Grants to help individual scientists from developing countries to attend the Conference by partially subsidizing their expenses. The applicants to the Grants were 56 colleagues (excluding young geomorphologists), but the Organizing Committee accepted 35 colleagues owing to the limited budget as follows.

The grant includes:

1. Cash (divided into four ranks according to scientific qualification and financial need of individual scientists):
   - Rank A: JPY150,000 for 11 colleagues,
   - Rank B: JPY100,000 for 8 colleagues,
   - Rank C: JPY20,000 for 9 colleagues,
   - Rank D: null for 7 colleagues.

2. Exemption of the costs (JPY44,000) amounting to the following fees: i.e. Regular Registration fee, One-day field excursion fee and Farewell party fee.

The 35 winners of the 5th ICG Grants are listed below in alphabetical order of their country names.

Krutaj, F.F.K. (Albania)
Mecaj, N. (Albania)
Benazzouz, M.T. M. (Algeria)
Khalilov, H.A. (Azerbaijan)
Islam, M.D.B. (Bangladesh)
De Oliveira, F.A. (Brazil)*
Fernades, N. (Brazil)
Latrubesse, E.M. (Brazil)
Rodrigues, S. C. (Brazil)
Zogning, A. (Cameroon)
Wang, S. J. (China)
Zhang, Z. (China)
Zhou, Y. (China)
Salloum, G. (Egypt)
Loczy, D. (Hungary)
Bandaru, H. M., (India)
Bora, A.K. (India)
De, S.K. (India)

Goswami, S.C. (India)
Jha, V.C. (India)
Farajzadeh, M. (Iran)
Batnassan, N. (Mongolia)
Ben Brahim, M. (Morocco)
Kaphle, K.P. (Nepal)
Jeje, L.K. (Nigeria)*
Florek, W. (Poland)
Migon, P. (Poland)
Kuznetsov, M. S. (Russia)*
Mitina, N.N. (Russia)
Stankoviansky, M. (Slovakia)
Knez, M. (Slovenia)
Mihev, A. (Slovenia)*
Mavlyanova, N.G. (Uzbekistan)
Terry, J.P. (Vanuatu: Fiji)
Roa, J. (Venezuela)

(*: did not attend the Conference)
The IAG Grants for Young Geomorphologists

The International Association of Geomorphologists (IAG) prepared the IAG Grants for Young Geomorphologists to promote their attendance in the Conference. The IAG Grants were provided for all of the 15 applicants who were born in or after 1970 as follows.

The IAG grants (cash) were divided into the following four cases:

- **Case A**: $800 (Travel cost) + $340 (Regular registration fee), for 2 persons,
- **Case B**: $800 (Travel cost) + $140 (Student registration fee), for 8 persons,
- **Case C**: $340 (Regular registration fee), for one person,
- **Case D**: $140 (Student registration fee), for 4 persons.

In addition to these, the Organizing Committee added the costs (JP¥6,000) amounting to the following fees: i.e. One-day field excursion fee and Farewell party fee to all of the 15 young geomorphologists:

The winners of the IAG Grants are listed below in alphabetical order of their country names.

- Foster, J.M. (Australia)
- Henrique, W. (Brazil)
- Kostov, K.S. (Bulgaria)
- Hou J. (China)
- Wang Y. P. (China)
- Xue Bin (China)*
- Giusti, C. (Italy)
- Alcantra-Ayala, I. (Mexico)
- Vieira, G.B.G.T. (Portugal)
- Domogatskikh, E.E. (Russia)
- Belyaev, V. R. (Russia)
- Alekseeva, V.A. (Russia)
- Demirci, A. (Turkey)
- Incekara, S. (Turkey)*
- Singer, M.B. (USA)
- (*: did not attend the Conference).

The subsidy was provided in exchange for the official letter to each winner at Headquarters office of the Organizing Committee on 23rd August 2001. Total budget expenses for both Grants above by the Organizing Committee was equivalent to about one third of the total income from the registration fee.
OUTLINE OF THE SCHEDULE OF THE 5TH ICG

**Thursday, 23 August**
10:00-17:00  **First Meeting of IAG Executive Committee**
13:00-20:00  **Registration** (continued until 28th, except 27th), Exhibition
17:00-19:00  **Welcome Party** sponsored by JGU (Cafeteria)

**Friday, 24 August**
09:30-10:00  **Opening Ceremony**
10:00-10:30  **First General Assembly**
10:40-11:20  IAG Presidential Lecture by Prof. O. Slaymaker
11:20-12:00  Special Lecture by Prof. S. A. Schumm
13:30-17:30  Symposia, Sessions, Exhibition
18:30-20:30  **Reception** (Akasaka Prince Hotel)

**Saturday, 25 August**
09:00-12:00  **First Council Meeting**
09:00-12:00  Plenary Lectures (Prof. A. Pissart and Prof. T. Dunne)
            Symposia, Sessions, Exhibition
13:30-17:30  Symposia, Sessions, Exhibition
18:00-20:00  IAG Dinner (Sanjo Kaikan Hall, University of Tokyo)

**Sunday, 26 August**
09:00-12:00  Plenary Lectures (Dr. H. Ikeya and Prof. N. Shuto)
            Symposia, Sessions, Exhibition
            Flower Arrangement
13:30-17:30  Symposia, Sessions, Exhibition
            Tea Ceremony
15:30-17:30  **Second Council Meeting**
16:00-17:30  **Meeting of Young Geomorphologists**
            Lecture (Prof. D. Brunsden)
18:00-20:00  Party of Young Geomorphologists

**Monday, 27 August**
08:00-19:00  **One-day Excursions**, Exhibition

**Tuesday, 28 August**
09:00-  **Meeting of New Executive Committee**
09:00-12:00  Symposia, Sessions, Exhibition
13:30-15:30  Symposia, Sessions
14:20-15:00  Plenary Lecture (Prof. M. Nogami)
15:50-16:30  **Second General Assembly**
16:30-17:30  Closing Ceremony
17:30-19:30  **Farewell (SAYONARA) Party** (Cafeteria)

**Wednesday, 29 August**: Post-Conference field trips started.
CEREMONIES AND OFFICIAL MEETINGS

Opening Ceremony

Date: 24 (Friday) August 2001, Time: 09:30-10:00.
Place: Room 5534, Korakuen Campus, Chuo University, Tokyo, Japan.
Chair by Takasuke Suzuki (Chuo Univ., Japan),
Chair of the Organizing Committee of the 5th ICG.
1. Opening address: Prof. Olav Slaymaker (Univ. of British Columbia, Canada),
President of the International Association of Geomorphologists.
2. Welcome address: Prof. Tsuguo Sunamura (Osaka Univ., Japan),
President of the Japanese Geomorphological Union (host organization).
3. Welcome address: Prof. Koji Suzuki (Chuo Univ., Japan),
President of Chuo University (host university).
4. Business announcements: Dr. Shunji Ouchi (Chuo Univ., Japan),
Venue sub-committee of the Organizing Committee.

Addresses:

Opening address by Prof. Olav Slaymaker

On behalf of the International Association of Geomorphologists I welcome all registrants to this Fifth International Conference on Geomorphology. The IAG is honoured to be the guest of the Japanese Geomorphological Union (JGU), particularly as this is the first ICG to be held outside Europe and North America. This meeting is a symbol of the urgent need to demonstrate the global nature of the IAG. This is actually the tenth formal meeting of the IAG. We have met successively in the UK, Germany, Turkey, Canada, Singapore, Hungary, Italy, Brazil, China and now Japan.

First, I would like to ask you to stand and remain silent for 30 seconds as we recall the lives of distinguished geomorphologists who have passed away during the past four years. Anders Rapp (IAG Senior Fellow), Alfred Jahn (former IGU Commission Chair), Sohei Kaizuka and others known to people present. We remember them with respect and send greetings to their family members.

I would also like to acknowledge the presence of Jess Walker (IAG Senior Fellow) and Denys Brunsden (IAG Past President and Senior Fellow), and at the same time remind you of the names of the other Senior Fellows of this Association: Hanna Bremer, Richard Chorley, Luna Leopold and Ross Mackay.

Japan has a rich geomorphological heritage, as described, for example, by Kaizuka and Suzuki (1993). Japan also has one of the world's most active communities of geomorphologists. As of the year 2000, the JGU membership stood at 824 and displayed several unique features. The JGU has its own IAG recognised journal (Transactions, Japanese Geomorphological Union). The disciplinary
affiliations of its members are remarkably evenly split among geomorphology (40%), civil/sabo engineering (16%), geology (11%), geography (10%) and geophysics/hydrology (8%). Employment sectors represented include university faculty (34%), construction company employees (17%) and students (10%). Each of these unique features evidences a creativity and an openness to new ideas and affiliations which is striking.

We should all be aware of the exceptional leadership provided by Dr. Takasuke Suzuki, Coordinator of the Local Organising Committee here in Tokyo. I know that he has been thinking about this event since the Frankfurt meeting in 1989 (if not even earlier) and much of the initial momentum surrounding the proposal to meet in Tokyo derives from his work. He and his committee have been working tirelessly on this project. We are all in their debt.

We are now ready to participate in an excellent week of international geomorphology. We look forward to this with anticipation.

Welcome address by Prof. Tsuguo Sunamura

Good morning, ladies and gentlemen. On behalf of the Japanese Geomorphological Union, I would like to express my gratitude and extend my warmest welcome to all of you who have come from many countries to attend the Fifth International Conference on Geomorphology.

As shown in the symbol mark for this conference, the Japanese Islands are situated in the subduction zone with frequent occurrence of earthquakes and volcanic eruptions. The major morphological features of Japan are mountains with very steep watersheds and few plains. Large populations in this small country with the rapid growth of economic activities have forced intensive land use with large-scale modifications of the land, resulting in dramatic morphological changes. Acute requirements were to adequately solve multiple problems associated with such landform changes and to promptly establish countermeasures for these problems. For this purpose, an interdisciplinary cooperation of various research fields associated with geomorphology was needed. This need brought about the foundation of the JGU, the Japanese Geomorphological Union in 1979. Since then, the JGU has developed continually and steadily. Such development has enabled us to convene this international conference in Japan at the beginning of the 21st century.

We have made every effort to organize and manage this conference. If you have any inconvenience during the conference, please feel free to ask the organizing committee.

Lastly, I would like to express my sincere appreciation to the president of Chuo University, Professor Koji Suzuki, for providing us this comfortable place and for making a generous donation toward the success of the conference. And my sincere
appreciation is also extended to the faculty, staff and students at Chuo University for their united cooperation and endeavor to facilitate the smooth functioning of the conference. Thank you.

**Welcome address by Prof. Koji Suzuki**

Good morning, ladies and gentlemen. Welcome to Japan and welcome to Chuo University!

It is my great pleasure to have you all here at Korakuen Campus, Chuo University, for the 5th International Conference on Geomorphology. This is the first time for me to see so many geomorphologists from all over the world. Unfortunately, I am not familiar with geomorphology, but I know it is one of the most important sciences especially in Japan. This is because various kinds of topographic changes often cause severe disasters in Japan.

I cannot forget the tragic loss of people's lives and properties by the Hansin-Awaji great earthquake with active faulting in 1995. Also, I worry about the people who have been still forced to evacuate from their dear old island, the volcanic island of Miyake-jima, south of Tokyo, due to the eruption last year. Further, it is regrettable that the natural environment is being destroyed in many areas in the world due to the large-scale man-made transformation of topography, river systems, coastal areas and so on.

Accordingly, as a science concerned with the nature of Earth's surface, geomorphology is expected to provide important knowledge, which is very useful for the prevention of natural disasters and the protection of the earth’s environment. Thus, it is timely that the main themes of this conference are related to “Geomorphology in a tectonically, climatically and anthropogenically sensitive region” exemplified by the Japanese Islands, as emphasized in the Third Circular of this conference.

Now I would like to introduce you to Chuo University briefly. Chuo University was established in 1885 as the English Law School in central Tokyo, and it was reorganized into Chuo University in 1905. The name *Chuo* means center or central in English. Chuo University, with its 6 faculties (Law, Economics, Commerce, Science and Engineering, Literature, Policy Making) and 610 full-time faculty members and more than 30,000 students enrolled in undergraduate and graduate courses, is one of the largest and prestigious universities in Japan. The main campus of Chuo University moved from central Tokyo to the western suburb of Tama in 1978, but the Faculty of Science and Engineering remained in this Korakuen Campus in central Tokyo.

This Faculty was founded as the Faculty of Engineering in 1949 and developed later into the Faculty of Science and Engineering in 1962. Now, this Faculty consists
of eight departments: i.e. Mathematics, Physics, Civil Engineering, Precision Mechanics, Electrical and Electronic Engineering, Applied Chemistry, Industrial and Systems Engineering, and Information and Systems Engineering, with 147 full-time academic staff and about 5,000 students including graduate students. The faculties and students enjoy a good reputation as one of the best educational and research institutions among many private universities in Japan.

Finally, I would like to express my great appreciation again for your choosing our Korakuen Campus as the venue of the 5th International Conference on Geomorphology. I hope you all enjoy being at this campus and having cool and fruitful discussions dispelling the extreme heat of Japanese summer. Thank you.

First General Assembly
Date: 24 (Friday) August 2001, Time: 10:00-10:30.
Place: Room 5534, Korakuen Campus, Chuo University, Tokyo, Japan.

Chaired by Prof. Olav Slaymaker, the president of the International Association of Geomorphologists (IAG).

Agenda:
1. Welcome and apologies for absence
2. Minutes from General Assembly in Bologna
3. Matters arising from the minutes
4. President’s Report
5. Presentation of Honorary Fellows
6. Vice-President’s Report
7. Secretary General’s Report
8. Treasurer’s Report
9. Publication Officer’s Report
10. Open discussion

Minutes of the first general assembly will be distributed in the Sixth ICG in Spain, 2005.

Introduction to new IAG senior fellows:
Stanley A. Schumm (University Distinguished Professor, Colorado State University, USA) and Torao Yoshikawa (Professor Emeritus, the University of Tokyo, Japan)

Stanley A. Schumm (United States of America)

Stanley Schumm: International Geomorphologist and Global Thinker

Stanley Schumm was a member of a remarkable group of graduate students under the supervision of Arthur Strahler at Columbia University during the 1940's and the 1950's. The group included Andy Brosco, Richard Chorley, Donald Coates,
Joan Kramer Lubowe, James Maxwell, Mark Melton, Victor Miller, Marie Morisawa, Ken Smith and Michael Woldenberg (Strahler, 1992). Schumm’s Ph.D. thesis took advantage of the careful mapping of an area of badlands by his supervisor and Coates in 1948 and remeasured point data at intervals of several months. In so doing he demonstrated for the first time a uniform depth of erosion occurring on slopes of straight profile. He introduced the constant of channel maintenance as an indicator of the minimum runoff area required to generate and sustain a permanent channel of the first order and the dimensionless relief ratio, an effective indicator of the overall steepness of a basin. In 1959, the American Geophysical Union honoured Stan with the Horton Award for his extraordinary paper entitled ‘The evolution of drainage systems and slopes in badlands at Perth Amboy, New Jersey’. In 1979, the Geological Society of America honoured him with the Kirk Bryan Award, partly because of his path-breaking book ‘The Fluvial System’, which had appeared in 1977, but also on the basis of the sequence of innovative research contributions he had been making over the previous two decades. In 1982, the British Geomorphological Research Group honoured him with the David Linton Award, shortly after he had introduced his concept of geomorphic thresholds to the British geomorphological community. The David Linton Award is reserved for 'someone who has already achieved great standing not only in fluvial geomorphology but in geomorphology as a whole' (Gregory, 1984). In 1984, Stan Schumm was a Distinguished Guest of the Japanese Geomorphological Union and published in the Transactions of JGU a thought-provoking paper on the sources of geologic uncertainty which subsequently led to his 1991 book ‘To Interpret the Earth’. My students tell me that this is the only book on the philosophy of earth science that makes any practical sense. Stan is also the recipient of the US National Academy of Science’s G.K.Warren Prize.

What then is there left to say about Professor Schumm?

It must first be said that it is the IAG which is being honoured by his acceptance of a Senior Fellowship. His presence at this meeting and his plenary lecture in themselves elevate the scientific status of the meeting and demonstrate that the IAG is committed to the honouring of the highest levels of research achievement in geomorphology.

It should be noted that Stan Schumm’s research productivity, which was already prolific by the end of the 1970’s, has in no way abated over the subsequent two decades. My Georef database printed out no fewer than 270 items, of which 103 were published since 1984. He continues to open up new areas of geomorphological theory and practice. Since 1984, new work on river response to active tectonics, the sedimentological implications of tectonism, experimental fluvial geomorphology, and the variability of large alluvial rivers, as well as his pioneering excursions into
the history and philosophy of earth science are all evidence of the innovative and outstanding research leadership that he continues to provide in the field.

The IAG also honours Professor Schumm for his significant role as a practising professional geomorphologist in the private sector. As Senior Associate with Ayres Associates and Principal Geomorphologist with Mussetter Engineering, his consulting activities with major public utilities and for government departments and ministries have brought recognition to the field of geomorphology as a necessary science in the realm of environmental impact assessment.

Stan Schumm's contribution has been genuinely international, not only through his publications in the international literature, but through his enthusiasm to carry out field work in Poland, Venezuela, South Africa, New Zealand, Australia, Japan and Taiwan, to name only the most obvious. Our science has benefited from Stan's distinguished international fieldwork.

It is worthy of note that Professor Schumm's contributions from the 1950's and 1960's have not become out-dated. At a time when many journal articles quote nothing older than 1990, fluvial geomorphologists are bound to acknowledge the fundamental ways in which their thinking has been changed by contact with those early Schumm papers. My students are still astonished when they see the way in which measures of static morphometry are transformed into indices of dynamic process in the Perth Amboy paper; when the variable status of geomorphic variables with scale is considered, when they first appreciate the significance of drainage basin 'complex response' or when they read the elegant statement of the disparity between present rates of denudation and orogeny.

All geomorphologists are in Professor Schumm's debt because of the way in which he has constantly challenged accepted wisdom in the field of geomorphology. An interesting recent example is his discussion on the significance and use of the geomorphic variable 'drainage density' in an essay presented on the occasion of the Festschrift in honour of his friend and IAG Senior Fellow Richard Chorley (Stoddart, 1997). The chapter is a thorough re-evaluation of a variable that is widely used but often misunderstood.

Finally, one of the undoubted secrets of Professor Schumm's success is that he is an eminently modest man. The Preface to his book 'To Inherit the Earth' contains the following statement: 'this short work should only be read by young earth and environmental scientists and students and not by philosophers, who would undoubtedly be aggravated by its lack of depth. It is indeed a very personal account of the scientific approach and the problems associated with it in the earth sciences' (Schumm, 1991). This 'personal account' has been of fundamental assistance to many graduate students struggling with the esoteric literature of the philosophy of science.
The IAG is honoured to award Professor Stanley Schumm a Senior Fellowship.

Olav Slaymaker

Torao Yoshikawa (Japan)

Torao Yoshikawa has been a pioneer of geomorphology in Japan since the end of World War II. He has promoted the researches on the modern quantitative geomorphology, the Quaternary history of landform development, and the dynamic relations between crustal movement and erosion in Japan. Under the politic, economic and scientific conditions sank just after the War, Professor Torao Yoshikawa made an effort to establish the education system and research framework of geomorphology in Japan for making remarkable productions in the world. He emphasized that the landforms in Japan were characterized by active crustal movement and intense mass movement, they should be studied by means of quantitative techniques and that they had to be introduced to the world for understanding the landform processes in the active regions.

His great advancement in geomorphology is the quantitative analysis of the relation between the uplift rate and erosion rate in the tectonically active and intensely denuded regions such as Japan. He organized a research group for a Quaternary tectonic map and revealed the vertical crustal movement over the Japanese Islands for the first time. The uplift rates in the Quaternary were estimated from the altitude of raised shorelines of marine terraces and of the uplifted low-relief-surfaces having formed in the late Tertiary and the early Quaternary. He calculated the present erosion rates from the sediment delivery rates to reservoirs. Based on the comparison between the uplift rates and erosion rates over Japan, he showed evidently that the landforms have been considerably eroded even during the uplift period and that some mountains in central Japan are in a steady state kept in a balance between the uplift rate and erosion rate. This concept is out of the Davisian scheme.

He succeeded in the separation of the effects of eustatic sea level change and crustal movement on the formation of stepped marine terraces. He analysed sequential changes in crustal movement measured by levelling survey since the 1880's. He clarified that the crustal movement is composed of long-term interseismic and rapid coseismic movements, and proposed a concept of the geomorphogenetic crustal movement. The geomorphogenetic crustal movement is a resultant movement accumulated over the sequence of interseismic and coseismic movement cycles, and causes cumulative landform displacement. Based on the analysis between the geomorphogenetic crustal movement and the altitude of raised shorelines, he proved that stepped marine terraces have been synchronized with high
sea level of eustatic movement even in the regions of active crustal movement. It put an end to the obstinate discussions that the stepped terraces have been formed due to intermittent movement of uplift. This made a great influence on Japanese geomorphologists, released them from old and traditional ideas and led them to a new horizon of geomorphology not only in the research field of marine terrace formation processes but also in all fields of geomorphology in Japan. He recognized Japanese physical characteristics, the mosaic complexity and multiplicity in all of the geomorphic properties very well and introduced the idea to his academic works. His books *Geomorphology of Japan* (1973, with Sugimura, A., Kaizuka, S, Ota. Y. and Sakaguchi, Y), *The Landforms of Japan* (1981, with Kaizuka, S. and Ota, Y.) and *Geomorphology of Tectonically Active and Intensely Denuded Regions* (1985), all demonstrate his passionate crusading for a new development of geomorphology in Japan.

Yoshikawa was graduated at the University of Tokyo in 1944, and had been Professor and Head of the Department of Geography, University of Tokyo (1961-1982). He was also a leader of the Japanese Expedition Team of Antarctic when the Japanese ship "Soya" closed in the ice-sea was helped by the Russian ship "Obi". At present he is Professor Emeritus of the University of Tokyo, honorary member of the Association of Japanese Geographers, Japan Association for Quaternary Research and of INQUA. He is gentle and sincere, and was a severe but kindly supervisor. A number of graduate students received D.Sc. degrees from him and are now actively working as professors at many universities throughout Japan. He has held many posts with distinction. Especially when he was the president of the Association of Japanese Geographers and the president of the Japan Association for Quaternary Research, he worked to introduce Japanese geomorphology to the world throughout his published books and by encouraging young Japanese geomorphologists to participate in international circumstances.

He loved field surveys. Whenever in the field he walked too fast for his students to keep up and reached the observation point first. All the while, he kept observing and measuring while waiting for the arrival of his students, before he began walking to the next observation point. His weak points in the field were dogs and suspension bridges. He took the long way round when he saw a dog or a suspension bridge on the route. His students could catch up with him and listen to his explanation. From observation at a number of places, he found many ideas and his students learned many things.

In Professor Yoshikawa we find a truly international geomorphologist and an individual worthy of the title Honorary Fellow of the IAG.

*Japanese Geomorphological Union*
**First Council Meetings** (Meetings of National Delegates)
Date: 25 (Saturday) August 2001, Time: 09:00-12:00.
Place: Room 5333, Korakuen Campus, Chuo University, Tokyo, Japan.
*Chaired by* Prof. Olav Slaymaker, the president of the International Association of Geomorphologists (IAG) and Dr. Piotr Migon (Secretary of the IAG)

**Agenda:**
1. Welcome and apologies for absence
3. Matters arising from the minutes, including Constitutional Change
4. Acceptance of new National Scientific Members
5. Working Groups reports and evaluation of activities
6. Presentation of candidates for office in the IAG Executive for 2001-2005
7. Presentation of invitations to host the VI International Conference on Geomorphology in 2005
8. Presentation of invitations to host the Regional Conference on Geomorphology in 2003
9. Presentation of proposals for Working Groups for 2001-2005
10. Motion to change the IAG Constitution
11. Amendment to the change of the IAG Constitution
12. Discussion of the Amendment

**Second Council Meeting**
Date: 26 (Sunday) August 2001, Time: 15:30-17:30.
Place: Room 5334, Korakuen Campus, Chuo University, Tokyo, Japan.
*Chaired by* Prof. Olav Slaymaker and Dr. Piotr Migon.

**Agenda:**
1. Vote on the Amendment to the change of the IAG Constitution
2. Discussion of the Motion to change the IAG Constitution
3. Vote on the Motion
4. Election of the Executive Committee for 2001-2005
5. Decision on the venue for the VI International Conference on Geomorphology in 2005
6. Decision on the venue for the Regional Conference on Geomorphology in 2003
7. Decision on new Working Groups for 2001-2005
8. Matters raised by National Scientific Members
9. Date and place of the next Council Meeting
Next IAG conferences:
The Sixth International Conference on Geomorphology will be held in Zaragoza, Spain, 2005 and the next IAG Regional Conference on Geomorphology will be held in Mexico City, Mexico, 2003.

Second General Assembly
Place: Room 5534, Korakuen Campus, Chuo University, Tokyo, Japan.
Chaired by Prof. Olav Slaymaker, and Dr. Piotr Migon
Agenda:
1. Welcome
2. Explanation of decisions made by the Council
3. IAG Constitution
4. Presentation of the Executive Committee for 2001-2005
5. Presentation of new Working Groups for 2001-2005
6. Presentation of the venue of the VI International Conference on Geomorphology in 2005

Closing Ceremony
Date: 28 (Tuesday) August 2001, Time: 16:00-17:20.
Place: Room 5534, Korakuen Campus, Chuo University, Tokyo, Japan.
Chaired by Takasuke Suzuki.
1. Introduction of the 5th ICG Grants Winners by T. Suzuki.
2. Introduction of the IAG Grants for Young Geomorphologists Winners by Prof. Olav Slaymaker.
3. Introduction of the Winner of the Jan De Ploey Prize by Prof. Albert Pissart (University of Liege, Belgium)
4. Closing address: Prof. Olav Slaymaker, the president of the IAG.
5. Inaugural address of the new president of the IAG and introduction to new members of Executive Committee of the IAG: Prof. Mario Panizza (Univ. of Modena, Italy), the new president of the IAG (2001-2005).
6. Welcome address: Prof. Mateo Gutiurrez Elorza (Spain), a representative of the host country of Sixth International Conference on Geomorphology in 2005.
7. Welcome address: Dr. Irasema Alcantara-Ayala (National Autonomous Univ. of Mexico), a representative of the host country of next IAG Regional Conference on Geomorphology in 2003.
8. Farewell address: Dr. Yoshimasa Kurashige (Univ. of Shiga Prefecture, Japan), Chief of Secretary staff of the JGU, as a replacement of Tsuguo Sunamura, the president of JGU, who could not attend the closing ceremony due to his official
Addresses:

Closing address by Prof. Olav Slaymaker

At the conclusion of this fabulous meeting, I am pleased to note that the IAG has now, for the first time, held a majority of its meetings outside Europe. We have listened to plenary lectures and participated in thematic sessions, symposia, pre-conference field trips, one-day excursions on August 27th, a meeting for Young Geomorphologists and a series of superb social events. Some of us are still looking forward to post-conference field trips. We have all learned a lot about our host country and the depth of expertise represented in the Japanese geomorphological community and we wish every success to the JGU and its future development.

I wish to give my sincerest thanks to the IAG for the opportunity to serve as its Acting President (1996-97) and as its President (1997-2001). The experience has been personally enriching and intellectually challenging. I also thank my friend Takasuke Suzuki for his outstanding contribution to the success of this meeting. And to all our Japanese hosts, I raise a glass of “sake” and say: “Anatagata no Sugureta Kenkyu, Anatgata no Atatakai Omotenashi, soshite Kono Kaigi no Totemo Subarashii Soshiki ni taishimashite, Kokoro kara Kansha Itashimasu. JGU yo, Eien nare! (in Japanese)”.

It remains for me to thank the outgoing Executive of the IAG for their brilliant service over the past four years: Piotr Migon (Secretary-General), Denise Reed (Treasurer), Christine Embleton-Hamann (Publications Officer), Mario Panizza (Vice-President), Albert Pissart and Bernard Dumas (Members without Portfolio) and to present to you your newly elected President Mario Panizza from the University of Modena, Italy. I look forward to the continuing consolidation and success of international geomorphology under the leadership of President Mario Panizza and his new Executive team.

Inaugural address by Prof. Mario Panizza (The new president of the IAG)

Mister Chairman, Ladies and Gentlemen, National Delegates and dear Colleagues.

First of all I wish to thank Professor Takasuke Suzuki and all the Japanese Colleagues for the perfect organization of this Fifth International Conference on Geomorphology and for the important scientific contributions which they have brought to the IAG since the official founding of our Association.

Furthermore, I wish to thank warmly all the Members of the outgoing Executive Committee for their active collaboration. In particular the outgoing President Olav Slaymaker for the in-depth discussions and comparison of our
opinions and for his availability in finding the most adequate solutions for the most diverse problems that we have had to face and solve during the past four years. I also wish to remember all Members of the two preceding Executive Committees, in particular Denys Brunsden, who was our First President.

It is now my duty to illustrate in short the guidelines on which the IAG strategy for the 2001-2005 quadrennium is based. This point was discussed today during the first Meeting of the New Executive Committee and is the result of my long and continuous presence in all the three IAG Executive Committees: as a Member in the first two and as Vice-President in the third one.

The main fields of intervention will be the following ones:

1. More committed participation of all geomorphologists in the IAG activities;
2. More official enrollment in the IAG of those countries that are less favored owing to economic reasons;
3. More information, updating and training opportunities for young researchers, especially those belonging to so called developing countries.

But how can these problems be solved? I will try to show some possible ways.

**Point 1:** More time should be dedicated to General Assemblies and Council Meetings, in order to listen to the requests of our member geomorphologists, focus and discuss the various problems which may arise and maintain a constant and straight confrontation with the basis of our researchers. During the Thematic and Regional Conferences - that is nearly every year - "Informal Assemblies" and "Informal Council Meetings" should be organized. These will be added to the official ones, which take place every four years, in order to receive new suggestions, discuss some of the proposals presented by various geomorphologists and collect opinions on some issues. Furthermore, syntheses of the Minutes of the Executive Committees should be published in the Newsletters and on the IAG Web Site, in order to inform everybody in the quickest possible way of the discussions and decisions taken.

**Point 2:** The official representation of all countries in which an organized group of geomorphologists exists should be encouraged, also by finding free-of-charge possibilities for enrollment in the IAG. Conditions should also be created so that less favored countries can participate in international projects and programs, sponsored by international institutions such as UNESCO, I.C.S.U, the European Commission etc.

**Point 3:** More frequent "Young Geomorphologists' Workshops" should be organized, also on the occasion of Thematic and Regional Conferences. Thematic or updating Courses on important geomorphological subjects (such as "Hazards" or "Global Change" or "Mountains problems" etc.) should be organized, also by
finding external funds. Information on initiatives and opportunities concerning young geomorphologists should be inserted in the Newsletters.

Finally, responsibility should be assigned to individual Executive Members in order to oversee these problems. Obviously, besides these three sectors of strategic intervention, there are all the other items that should give continuity to the activities already in progress within the IAG.

Within these I would like to cite three important tasks:

A. To favour and intensify the activities of the Working Groups, whose main aim should be that of structuring research projects at an international level to be submitted for financial support to institutions such as I.C.S.U., UNESCO, E.U. and so on.

B. Strengthen the relationships with UGI and IUGS: we will have the chance to do so especially in 2004, within the realm of the International Geographical Congress (Glasgow, UK) and of the International Geological Congress (Florence, Italy).

C. We must be actively involved in setting up important initiatives during the "Year of the Mountains" (2002): the New Executive Committee has pointed out some activities (Intensive Courses and Symposia) for which will soon be consulted all the countries of concern and informed all the IAG Members.

Certainly the work ahead is complex and considerable, but I wish to assure you of the commitment of all the Executive Committee and of myself for the achievement of these goals in the best possible way.

To you all I say "good bye!" and see you again (or, rather, hasta luego!) in Zaragoza, in Spain, in 2005, but, even before that, I hope to see you all again during the scheduled Regional Conference in Mexico in 2003 (so again hasta luego!), arrivederci!

Farewell address by Dr. Yoshimasa Kurashige

On behalf of Japanese Geomorphological Union, I wish to express our sincere thanks to all of you who have so actively participated in this conference to make it such a success. During this conference I had been at around the information desk, and I could feel how you are happy and satisfied with this conference. We, Japanese members, could do our best to manage this conference. Not only that, all of you made effort to participate here to find new vision of geomorphology in this century.

In Japan, to express quality of effort, we have a special word "臥薪尝胆 (Ga-shin-shou-tan)". This word came from an old Chinese tale, and "Ga-shin-shou-tan" which means that, to make good effort, one has to do very hard work, something like to sleep on wood blocks or to take very bitter medicine. I think, for geomorphologists, "Ga-shin-shou-tan" means that we have to make challenge with
new techniques and originalities to show how geomorphology is important. For this purpose, we have to continue "Ga-shin-shou-tan".

In this conference, we could join here with fruits of "Ga-shin-shou-tan" of each of the participants. In the next conference, I expect that we can join again with new fruits of "Ga-shin-shou-tan".

See you again “en Mexico en año 2003 y en Zaragoza España en año 2005”. Now, I will say to all of you “Sayonara” and “Hasta la vista”. Thank you very much.
SUMMARY OF SCIENTIFIC PRESENTATIONS

Themes of scientific presentation were able to submit on any geomorphic topic, although the organizing committee wished to emphasize the themes related to “Geomorphology in a tectonically, climatically and anthropogenically sensitive region” exemplified by the Japanese Islands. The scientific presentations were performed in the forms of special lectures, plenary lectures, oral and poster presentations in sessions and symposia. The number of scientific presentations is summarized below. The number of oral and poster presentations in each of the sessions and symposia are shown in the following pages.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Number of titles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special lectures</td>
<td>2</td>
</tr>
<tr>
<td>Plenary lectures*</td>
<td>6</td>
</tr>
<tr>
<td>Sessions (14 themes)</td>
<td>216**</td>
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<tr>
<td>Oral presentations</td>
<td>107</td>
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<tr>
<td>Poster presentations</td>
<td>109</td>
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<tr>
<td>Symposia (21 themes)</td>
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<tr>
<td>Poster presentations</td>
<td>88</td>
</tr>
<tr>
<td>Total</td>
<td>515**</td>
</tr>
</tbody>
</table>

*: Including a lecture in the meeting of young geomorphologists.

**: This number is smaller than those submitted (597 titles in total) due to absentees.

The presentation policy for the 5th ICG was that each registrant was able to present one oral and/or one poster through the main conference, as described in the Second and Third circulars.

Time for oral presentation was 15 minutes, followed by 5 minutes for discussion. Symposia chairpersons allocated more time to particular papers at their direction. Each lecture room was equipped with one overhead projector and one slide projector. A second overhead and/or slide projector was provided, if requested. Multimedia projector such as Power Point for presentation was not prepared as a rule by the Organizing Committee in order to avoid possible troubles in operating it.

Poster presentations were performed spaciously in 8 rooms everyday, and 6 posters were on display in a room with about 100 seats for regular lecture. The display surface of each poster was two panels mounted on vertical posts. Each panel was 1.2 m in height and 1.8 m in width. Each poster was on display for half a day.
Special lectures

24 August, Friday

The IAG Presidential lecture: *Chaired by* Migon, P. (Poland)

Olav Slaymaker (Professor, Department Geography, University of British Columbia, Canada): The Status of Drainage Basin Studies in Geomorphology

**Special lecture: Chaired by** Slaymaker, O. (Canada)

Stanley A. Schumm (Professor, Department of Earth Resources, Colorado State University, USA): Rivers: Erroneous Perceptions and Faulty Predictions.

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Plenary lectures

25 August, Saturday

**PL1** with Session 04: *Chaired by* Vandenberghe, J. (Netherlands).

Albert Pissart (Professor, Department of Physical Geography, University of Liege, Belgium): The Remnants of Lithalsas in Western Europe and the Climate during the Younger Dryas Time.

**PL2** with Symposium S06: *Chaired by* Gupta, A. (UK)

Thomas Dunne (Professor, School of Environmental Science and Management, University of California, Santa Barbara, USA): Sediment Transport and Sedimentation along Lowland Rivers.

26 August, Sunday

Regrettably, plenary lectures by Prof. Antonio Cendrero (Spain) and Prof. Laurence K. Jeje (Nigeria) were cancelled.

**PL5** with Session 01: *Chaired by* Mizuyama, T. (Japan)

Hiroshi Ikeya (Doctor, Director, Sabo Technology Research, Japan): Sediment Disasters and Sabo Works in Japan.

**PL6** with Session 03: *Chaired by* Sunamura, T. (Japan)

Nobuo Shuto (Professor, Faculty of Policy Studies, Iwate Prefectural University, Japan): Tsunamis and Topography.

28 August, Tuesday

**PL7** with Session 11: *Chaired by* Pike, R. J. (USA)

Michio Nogami (Professor, Department of Geography, Nihon University, Japan): Landform of Japanese Islands presented on digital maps.

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Lecture in the Meeting of Young Geomorphologists

(26 August, Sunday)

Denys Brunsden (Professor, Department of Geography, King’s College London, UK): Geomorpholia.
Sessions

The session number, theme, convenors, sub-themes, chairs, and numbers of oral and poster presentations in each session are shown below.

01: Hillslope Processes and Hydrogeomorphology
Convenors: Okunishi, K. (Japan) and Suwa, H. (Japan)

Oral Presentations:
(1) Hydrodynamic and hydrological processes: Chaired by Allison, R. J. (UK), 6 papers.
(2) Landslides: Chaired by Mizuyama, T. (Japan)
(3) Erosion and sedimentation: Chaired by Li, G. (USA) and Okunishi, K., 6 papers.

Poster Presentations: 11 posters.

02: Fluvial Geomorphology and Environments
Convenors: Nakamura, F. (Japan) and Ikeda, H. (Japan)

Oral Presentations:
(1) Sediment transport and landform formation in a catchment: Chaired by Grant, G. (USA) and Nakamura, F., 4 papers.
(2) River geomorphology and management: Chaired by Hooke, J. (UK) and Shimazu, H. (Japan), 3 papers.
(3) Channel morphology: Chaired by Trustrum, N. (New Zealand) and Kodama, Y. (Japan), 2 papers.

Poster Presentations: 12 posters.

03: Coastal Geomorphology and Environments
Convenors: Sunamura, T. (Japan), Koike, K. (Japan) and Uda, T. (Japan)

Oral Presentations
Coastal geomorphology and environments (1): Chaired by Trenhaile, A. (Canada) and Matsubara, A. (Japan), 4 papers.
Coastal geomorphology and environments (2): Chaired by Walker, H. (USA) and Koike, K., 5 papers.

Poster Presentations: 14 posters.

04: Glacial and Periglacial Geomorphology
Convenors: Haeberli, W. (Switzerland), Matsuoka, N. (Japan) and Iwata, S. (Japan)

Oral Presentations:
(1) Present and past periglacial environments: Chaired by Haeberli, W. (Switzerland) and Vandenberghe, J. (Netherland), 6 papers.
(2) Glacial and nival environments: Chaired by Iwata, S., 3 papers.
(3) Periglacial processes: Chaired by Hall, K. (Canada) and Matsuoka, N., 4 papers.

**Poster Presentations:** Two-minute introduction will be done in front of each poster.

1. Glacial and nival environments: 2 posters.
2. Present and past periglacial environments: 8 posters.

**05: Weathering and Structural and Rock Control in Geomorphology**
Convenors: Matsukuru, Y. (Japan) and Tanaka, Y. (Japan)

**Oral Presentations**
(1) Weathering: *Chaired by* Ehlen, J. (USA) and Matsukuru, Y., 4 papers.
(2) Structural and rock control: *Chaired by* Schmidt, K. -H. (Germany) and Tanaka, Y., 3 papers.

**Poster Presentations**
(1) Weathering: 6 posters.
(2) Structural and rock control in geomorphology: 5 posters.

**06: Volcanic Geomorphology and Hazards**
Convenors: Moriya, I. (Japan), Yokoyama, S. (Japan), Kadomura, H. (Japan) and Thouret, J. -C. (France)

**Oral Presentations:** *Chaired by* Moriya, I., Yokoyama, S., Kadomura, H. and Thouret, J. -C., 7 papers.

**Poster Presentations:** 12 posters.

**07: Tectonic Geomorphology and Earthquake Hazards**
Convenors: Chigira, M. (Japan) and Koyi, H. A. (Sweden)

**Oral Presentations**
(1) Earthquake hazards: *Chaired by* Petley, D. N. (UK) and Chigira, M., 4 papers.
(2) Geomorphological evolution and tectonics: *Chaired by* Koyi, H. A. and Chigira, M., 6 papers.

**Poster Presentations:** 6 posters.

**08: Pedogeomorphology and Environments**
Convenor: Yoshinaga, S. (Japan)

**Oral Presentations:** *Chaired by* Olson, C. G. (USA) and Yoshinaga, Y., 4 papers.

**Poster Presentations:** 3 posters.

**09: Quaternary Environments, Geochronometry and Historical Geomorphology**
Convenors: Kashima, K. (Japan) and Benazzouz, M. T. (Algeria)

**Oral Presentations:** *Chaired by* Kashima, K. and Benazzouz, M. T., 7 papers.

**Poster Presentations:** 12 posters.

**10: Anthropogenic and Engineering Geomorphology**
Convenors: Tamura, T. (Japan) and Okimura, T. (Japan)

**Oral Presentations:** *Chaired by* Ertek, T. A. (Turkey), Tamura, T. and Okimura, T., 4 papers.
**Poster Presentations**: 2 posters.

11: **Mapping in Geomorphology**  
Convenors: Pike, R. J. (USA), Nogami, M. (Japan), Masaharu, H. (Japan) and Saito, K. (Japan)

**Oral Presentations**: Chaired by Pike, R. J. and Masaharu, H., 4 papers.  
Plenary Lecture by Nogami, M. (Japan): Chaired by Pike, R. J. (USA)

12+13+16: **Landscape Simulation, Macrogeomorphology and Environmental Aspects of Hydrogeomorphology**  
Convenors: Ohmori, H. (Japan), Hirano, M. (Japan) and Hovius, N. (UK)

**Oral Presentations**: Chaired by Hovius, N. and Ohmori, H., 2 papers.

**Poster Presentations**: 5 posters.

14: **Theories, Methods and Techniques in Geomorphology**  
Convenors: Tokunaga, E. (Japan), Koyi, H. A and Yamamoto, H. (Japan)

**Oral Presentations**:  
Theories, methods and techniques in geomorphology (1): Chaired by Hutchinson, M. (Australia) and Tokunaga, E., 3 papers.  

**Poster Presentations**: 6 posters.

15: **Karst Geomorphology**  
Convenors: Williams P. (New Zealand) and Urushibara-Yoshino, K. (Japan)

**Oral Presentations**:  
Karst geomorphology (2): Chaired by Terry, J. P. (Fiji), 3 papers.

**Poster Presentation**: one poster.

**Symposia**

The symposium number, theme, convenors, sub-themes, chairs, and numbers of oral and poster presentations in each symposium are shown below.

S01: **Rock Control in Geomorphological Processes**  
Convenors: Suzuki, T. (Japan), Matsukura, Y. (Japan) and Tanaka, Y. (Japan)

**Oral Presentations**: Chaired by Matsukura, Y., Ehlen, J. (USA), Migon, P. (Poland), Tanaka, Y., and Suzuki, T., a keynote, 5 papers and concluding discussion.

S02+S03: **Landslides, Debris Flows and Related Fluvial Processes**  
Convenors: Wassmer, P. (France), Suwa, H. (Japan) and Okunishi, K. (Japan)

**Oral Presentations**:  
(1) Debris avalanches and debris flows: Chaired by Suwa, H. and Okunishi, K., 6 papers.  
(2) Landslides: Chaired by Okunishi, K. and Suwa, H., 2 papers.
(3) Concluding discussion: *Chaired by* Wassmer, P.

*Poster Presentations:* 7 posters.

**S04+05: Sensitivity and Recovery of Landscape Following Disturbances to Sediment Delivery**
Convenors: Brierley, G. (Australia), Trustrum, N. (New Zealand) and Marutani, T. (Japan)

*Oral Presentations:*
Sub-session 1: *Chaired by* Marutani, T., 5 papers and discussion.
Sub-session 2: *Chaired by* Trustrum, N. A., 3 papers and discussion.
Sub-session 3: *Chaired by* Maita, H. (Japan), 5 papers and discussion.
Sub-session 4: *Chaired by* Kodama, Y. (Japan), 3 papers and discussion.
Sub-session 5: *Chaired by* Brierley, G., 5 papers and discussion.

*Poster Presentations:* 4 posters.

**S06: Large Rivers** (IAG Working Group on Large Rivers and INQUA-GLOCOPH)
Convenors: Gupta, A. (UK), Latrubesse, E. M. (Brazil) and Kubo, S. (Japan)

*Oral Presentations:*
Sub-session 1: *Chaired by* Gupta, A., an introduction and a keynote lecture.
Sub-session 2: *Chaired by* Finlayson, B. L. (Australia) and Latrubesse, E. M., 3 papers.
Sub-session 3: *Chaired by* Baker, V. R. (USA) and Umitsu, M. (Japan), 3 papers.
Sub-session 4: *Chaired by* Grant, G. (USA) and Kubo, S., 4 papers.
Plenary lecture by Thomas Dunne (USA): *Chaired by* Gupta, A.
Sub-session 5: *Chaired by* Harvey, A. M. (UK) and Latrubesse, E. M., 5 papers.
Sub-session 6: *Chaired by* Kubo, S., Latrubesse, E. M. and Gupta, A., a paper and concluding discussion.

*Poster Presentations:* 3 posters.

**S07: Fluvial Geomorphological Processes Through Time (FLAG Symposium)**
Convenors: Vandenberghe, J. (Netherlands) and Kadomura, H. (Japan)


**S08: Geomorphological Significance of Active Faults and Seismo-tectonics**
Convenors: Okada, A. (Japan) and Berryman, K. (New Zealand)

*Oral Presentations: Chaired by* Ota, Y. (Japan), Berryman, K. and Okada, A., 8 papers and concluding discussion.

*Poster Presentations:* 5 posters.

**S10: Surface and Buried Geomorphology of Deep Sea Channel, Canyon and Deep Sea Fan, Active Margin vs. Passive Margin**
Convenors: Tokuyama, H. (Japan) and Tani, S. (Japan)

*Poster Presentations:* 3 posters.
S11: Geomorphic Impacts of Rapid Environmental Change
Convenors: Thomas, M. (UK), Oguchi, T. (Japan) and Piegay, H. (France)

Oral Presentations:
(1) Keynote Speech by Thomas, M. F.: Landscape sensitivity to environmental change - a Quaternary perspective.
(2) Impacts of rapid global climate change: Chaired by Thomas, M. F. and Oguchi, T., 5 papers.
(4) GIS and hazard mapping: Chaired by Oguchi, T. and Piegay, H., 5 papers.

S12+S13: Geomorphic Evolution by Inland Water / Climato- and Tectono-Geomorphic Changes and Lake Sediment Information
Convenors: Kashiwaya, K. (Japan) and Chikita, K. (Japan)

Oral Presentations: Chaired by Kashiwaya, K. and Chikita, K., 4 papers.
Poster Presentations: 9 posters.

S14+S15: Loess and Eolian Dust from Desert-chronology and Paleo-environments in the Late Quaternary
Convenor: Naruse, T. (Japan)

Oral Presentations:
Sub-session 1: Chaired by Wright, J. S. (UK) and Yoshinaga, S. (Japan), an introduction and 2 papers.
Sub-session 2: Chaired by Hilgers, A. (Germany), Ben Brahim, M. (Morocco) and Toyoda, S. (Japan), 4 papers.
Concluding discussion: Chaired by Radtke, U. (Germany), Yoshinaga, S. and Naruse, T.

S16: A High Resolution Reconstruction of Geomorphic Revolutions and Environmental Changes during the Late Quaternary
Convenor: Kashima, K. (Japan)

Oral Presentations:
Sub-session 1: Chaired by Gutierrez, M. (Italy) and Kashima, K., 4 papers.
Sub-session 2: Chaired by Ollerhead, J. (Canada) and Kashima, K., 5 papers.

S17: Laboratory Approaches to Geomorphological Problems
Convenors: Carling, P. A. (UK) and Ikeda, H. (Japan)

Oral Presentations: Chaired by Ikeda, H. and Carling, P. A., an introduction and 3 papers.
Poster Presentations: 2 posters.

S18: Geomorphological Consequences of Large-scale Anthropogenic Transformation of Earth’s Surface
Convenors: Okimura, T. (Japan) and Tamura, T. (Japan)
Oral Presentations: Chaired by Marchetti, M. (Italy) and Okimura, T., 3 papers and concluding discussion.

S19: New Concepts and Modeling in Geomorphology
Convenors: Evans, I. S. (UK), Dikau, R. (Germany), Tokunaga, E. (Japan), Ohmori, H. (Japan) and Hirano, M. (Japan)
Poster Presentations: 4 posters.

Oral Presentations:
New concepts and modeling in geomorphology (2): Chaired by Evans, I. S. and Ohmori, H., 4 papers.
New concepts and modeling in geomorphology (3): Chaired by Hovius, N. (UK) and Hirano, M., 3 papers.
Discussion: Chaired by Evans, I. S.
Concluding discussion for Symposia 19 and 20: Chaired by Evans, I. S., Pike, R. J. (USA) and Ohmori, H.

S20: Geomorphometry, DEMs and GIS
Convenors: Pike, R. J. (USA), Nogami, M. (Japan), Masaharu, H. (Japan) and Saito, K. (Japan)
Poster Presentations: 11 posters.

Oral Presentations:
Keynote speech on Geomorphometry, DEMs and GIS by Pike, R. J.
(1) Technical aspects: Chaired by Pike, R. J. and Saito, K., 8 papers.
(2) Geomorphometry and applications of DEMs: Chaired by Pike, R. J., Masaharu, H. and Saito, K., 11 papers.
(3) DEMs for geomorphology: Chaired by Pike, R. J. and Nogami, M., 2 papers.
Concluding discussion for Symposia 19 and 20: Chaired by Evans, I. S. (UK), Pike, R. J. and Ohmori, H.

S21+S22: Interactions between Geomorphic and Ecological Processes and Riverine Habitat
Convenors: Nakamura, F. (Japan) and Montgomery, D. R. (USA)

S23: Interaction between Geomorphic Changes and Hydrological Circulation
Convenors: Sidle, R. (Singapore) and Onda, Y. (Japan)
Oral Presentations:
The interaction among water flow path, hillslope processes and landform (1): Chaired by Onda, Y., an introduction and 5 papers.
The interaction among water flow path, hillslope processes and landform (2):
Weathering, sediment yield and water flow path: *Chaired by* Sidle, R., 9 papers and general discussion.

**Poster Presentations:** 18 posters.

**S24: Glaciation and Periglaciation of Asian High Mountains**
Conveners: Böse, M. (Germany), Hirakawa, K. (Japan), Sawagaki, T. (Japan) and Matsuoka, N. (Japan)

**Oral Presentations:**
Introduction to Symposium 24 by Böse, M.
(1) Quaternary glaciation and glacial landforms: *Chaired by* Ono, Y. (Japan) and Kuhle, M. (Germany), 8 papers.
(2) Periglaciation and nival landforms: *Chaired by* Etzelmüller, B. (Norway) and Fort, M. (France), 5 papers.
(3) General discussion *Chaired by* Böse, M.

**Poster Presentations:**
(1) Quaternary glaciation and glacial landforms: 8 posters.
(2) Periglaciation and nival landforms: 7 posters.

**S25: Karst in a Changing World: The Response of Karst Systems to Tectonic Events, Changing Climates, Sea-levels, and Human Impact**
Covenors: Williams, P. (New Zealand) and Urushibara-Yoshino, K. (Japan)

**Oral Presentations:**
Karst in a changing world (1): *Chaired by* Williams, P., 4 papers.
Karst in a changing world (2): *Chaired by* Urushibara-Yoshino, K., 5 papers.
General discussion *Chaired by* Williams, P.

**S27: Geomorphology of Desert Environments and Desertification**
Convenors: Yang, X. (China,), Jaekel, D. (Germany) and Kobori, I. (Japan)

**Oral Presentations:**
Sub-session 1: *Chaired by* Yang, X., 4 papers.
Sub-session 2: *Chaired by* Jaekel, D., 3 papers.
Discussion on future activities: *Chaired by* Kobori, I., Jaekel, D. and Yang, X.

**Poster Presentations:** 6 posters.

**S28: The Role of Geomorphology in Combating Land Degradation**
Convener: Conacher, A. (Australia) and Ono, Y. (Japan)

**Oral Presentations:**
Sub-session 1: *Chaired by* Inbar, M. (Israel), 7 papers.
Sub-session 2: *Chaired by* Conacher, A., 2 papers, summary of symposium and concluding comments.
Business Meeting of COMLAND.

**Poster Presentation:** a poster.
PUBLICATION PLANS FOR SCIENTIFIC PAPERS

The papers presented in the 5th ICG will not be published in the IAG proceedings series. They will be separately published in a form of special issue or selected papers of each symposium and/or related session in the five professional journals of geomorphology recognized by the IAG as well as other journals and monographs with special reference to the 5th ICG. The IAG recognized professional journals of geomorphology are:

- Zeitschrift für Geomorphologie (Germany),
- Earth Surface Processes and Landforms (The Journal of the British Geomorphological Research Group, UK),
- Transactions, Japanese Geomorphological Union (Japan),
- Geomorphology (Elsevier, The Netherlands), and
- Géomorphologie, Relief, Processus, Environnement (Revue du Groupe Français de Géomorphologie, France).

According to Prof. Christine Embleton-Hamann (Austria, the IAG Publication officer), the planned publications as of January 2002 are 17 issues, as listed below in the order of Symposium/Session number, tentative title, journal and editors.

S01 + Session 05: Rock control in geomorphological processes,
- Transactions, Japanese Geomorphological Union, Vol. 23, No. 2 (April 2002), T. Suzuki (Japan), Y. Matsukura (Japan), J. Ehlen (USA) and Y. Tanaka (Korea)

S02+S03: Landslides, debris flows and related fluvial processes,
- Geomorphology,
  H. Suwa (Japan), P.C. E. Wassmer (France) and K. Okunishi (Japan)

S06: Large rivers,
- Earth Surface Processes and Landforms,
  Editor is not yet decided.

S07: Fluvial geomorphological processes through time,
- Special issue, probably Quaternary Science Reviews,
  J. Vandenberghe (The Netherlands)

S11: Geomorphic impacts of rapid environmental change,
- Catena (special issue),
  M. Thomas (UK), T. Oguchi (Japan) and H. Piegay (France)

S14+S15: Loess and eolian dust from desert - Chronology and paleoenvironments in the late Quaternary,
- Transactions, Japanese Geomorphological Union,
  T. Naruse (Japan).
S18: Geomorphological consequences of large-scale anthropogenic transformation of earth’s surface + Session 10: Anthropogenic and engineering geomorphology, Zeitschrift für Geomorphologie, T. Tamura (Japan) and T. Okimura (Japan).

S19: New concepts and modeling in geomorphology, Monography by Springer-Verlag, Tokyo, L.S. Evans (UK), R. Dikau (Germany), E. Tokunaga (Japan), H. Ohmori, (Japan) and M. Hirano (Japan).

S20: Geomorphometry, DEMs and GIS, Transactions, Japanese Geomorphological Union, Editor is not yet decided.

S21+S22: Interactions between geomorphic and ecological processes and riverine habitat + Session 2: Fluvial geomorphology and environments, AGU monograph, Editor is not yet decided.

S23: Interaction between geomorphic changes and hydrological circulation, Hydrological Processes (Wiley), R. Sidle (Singapore) and Y. Onda (Japan).

S24: Glaciation and periglaciation of Asian high mountains, Zeitschrift für Geomorphologie, K. Hirakawa (Japan), M. Böse (Germany), T. Sawagaki (Japan) and N. Matsuoka (Japan).

S25: Karst in a changing world: the response of karst systems to tectonic events, changing climates, sea-levels, and human impact + Session 1: Karst geomorphology, Zeitschrift für Geomorphologie, P. Williams (New Zealand) and K. Urushibara-Yoshino (Japan).

S27: Geomorphology of desert environments and desertification, Zeitschrift für Geomorphologie, X. Yang (China), D. Jaekel (Germany) and I. Kobori (Japan).


Session 4: Glacial and periglacial geomorphology, Geomorphology, W. Haeberli (Swiss), N. Matsuoka (Japan) and S. Iwata, S. (Japan).

Session 7: Tectonic geomorphology and earthquake hazards, Géomorphologie, relief, processus, environement, D. Petley (UK)

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REPORTS ON FIELD TRIPS AND ONE-DAY EXCURSIONS

The Organizing Committee had initially planned to hold many courses of Pre- and Post-conference field trips in Japan, and one-day excursions around Tokyo, in addition to six overseas courses under the kind cooperation of Chinese and Korean colleagues. However, half the number of field trips in Japan and all overseas trips were cancelled due to fewer applicants at the deadline of application (31 March 2001 for Pre- and Post-conference trips and 18 July 2001 for one-day excursions, as informed in the Second and Third circulars). The fewer applicants might be mainly because too many courses were initially planned, and also the trip costs might have been expensive for overseas colleagues in particular. Therefore, some courses were combined to hold as many field trips and one-day excursions as possible. The field trips and one-day excursions held are summarized in the Table below.

<table>
<thead>
<tr>
<th>Course</th>
<th>Days</th>
<th>Chief leader</th>
<th>Participants*</th>
<th>Guidebook**</th>
</tr>
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<tbody>
<tr>
<td>Pre-Conference field trips</td>
<td></td>
<td></td>
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<tr>
<td>A6: Soya</td>
<td>3</td>
<td>Y. Tanaka</td>
<td>14</td>
<td>41 p.</td>
</tr>
<tr>
<td>Sub-total</td>
<td>3 courses</td>
<td></td>
<td>45</td>
<td>129 p.</td>
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<tr>
<td>Post-Conference field trips</td>
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<td></td>
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</tr>
<tr>
<td>B4: Ontake</td>
<td>5</td>
<td>K. Okunishi</td>
<td>21</td>
<td>121 p.</td>
</tr>
<tr>
<td>B7: Japan Alps</td>
<td>6</td>
<td>N. Matsuoka</td>
<td>24</td>
<td>72 p.</td>
</tr>
<tr>
<td>B8: IGCP</td>
<td>6</td>
<td>Y. Ono</td>
<td>19</td>
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<tr>
<td>Sub-total</td>
<td>5 courses</td>
<td></td>
<td>107</td>
<td>421 p.</td>
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<tr>
<td>One-day excursions</td>
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<td></td>
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<tr>
<td>D5: Boso</td>
<td>1</td>
<td>R. Yagi</td>
<td>10</td>
<td>10 p.</td>
</tr>
<tr>
<td>D9: Hakone</td>
<td>1</td>
<td>S. Aramaki</td>
<td>42</td>
<td>16 p.</td>
</tr>
<tr>
<td>D12: Fuji</td>
<td>1</td>
<td>Y. Agata</td>
<td>38</td>
<td>22 p.</td>
</tr>
<tr>
<td>Sub-total</td>
<td>8 courses</td>
<td></td>
<td>205</td>
<td>136 p.</td>
</tr>
<tr>
<td>Grand total</td>
<td>16 courses</td>
<td></td>
<td>357</td>
<td>686 p.</td>
</tr>
</tbody>
</table>

* including leaders and supporters. ** A4 size, excluding additional maps and figures.

A guidebook for each course was distributed to all participants at the start time. However, the Organizing Committee was obliged to give up the publication of a combined volume of guidebooks as a special issue of TGJU because of the limited...
budget for printing the 686 pages in A4 size and some maps. Therefore, the outlines of all field trips and one-day excursions held are reported here in this summary. If you wish to obtain each guidebook, please contact the leader or reporter by e-mail described in the following reports. In addition, overseas colleagues who attended the field trip and/or one-day excursions will report their impressions in the IAG Newsletter published in the IAG recognized journals.

Pre-Conference Field Trips

A1 (OKINAWA): Quaternary tectonics and karst landform, Okinawa and Kikai Island

Leader: Kazuko Urushibara-Yoshino (Hosei Univ.).
Co-leaders: Akira Maekado (Univ. of Ryukyus), Yoko Ota (Yokohama National Univ.).
Start: at Naha, Okinawa, on 17 August 2001, End: at Tokyo on 24 August.
Participants (13 persons): David S. Gillieson (Australia), Wang Ying (China), Zhu Dakui (China), Jean-Noel Salomon (France), Francoise Salomon (France), Michele Motta (Italy), Paul W. Williams (New Zealand), Takashi Hirose (Japan), Yoshio Arakaki (Japan), Mikio Shinkawa (Japan), Kentaro Hayashi (Japan), Shizuka Hirayama (Japan) and Noriko Kohama (Japan).
Guidebook: A4 size, 72 pages, 49 figures and 6 tables.
Route:
17 Aug.: Participants arrived at Okinawa. Sightseeing in Naha (visited a castle of Ryukyu Kingdom).
18 Aug.: Futenmagu cave (Shintoism in the cave), Ryukyu–cement Co. Ltd. (limestone quarry), Shiokawa karst spring connecting with sea water were observed. In Yamazato cone karst, the TV crew and a journalist from a local newspaper “Okinawa Times” interviewed the participants of A1 field trip and broadcasted and reported later. A citizens movement has been occurring against the planning of a limestone quarry in Yamazato cone karst areas. The opinion of the participants from New Zealand and Australia was that since cone karst is very rare in Japan, original landscape should be maintained for the purpose of education. We observed uvale and cave at Ufudo, a limestone wall at Shinzato and beach rock at Bise.
19 Aug.: We observed karst window and systems at Kinabaru, and karst springs and tufa at Shikiya. The cave systems and the conservation of commercial cave at Gyokusendo cave were discussed. Coral reef terraces and notches at Gushikami, limestone wall at Yaesedake and surf bench affected by typhoon at Kyan were observed in the afternoon.
A1: Notches at Dushinkami, Okinawa.

A1: On the terrace of stage 5e, Kikai Island, Okinawa.
20 Aug.: The destination to Kikai Island by airplane in the morning was originally scheduled. However, effects of the typhoon were so strong that the flight was canceled. Therefore, a half-day tour to the silk kimono factory and porcelain factory was organized. By the afternoon flight, all participants were able to reach Kikai Island.

21 Aug.: We observed soil forming processes on stage 5e terrace at Nakanishi Park and Hyakunodai. Karst springs at Takigawa, Sakamine, Gusuku and Karimatono-izumi were also observed. Tsunami-ishi on the uplifted bench at Tonbizaki and Holocene coral reef terraces at Shitooke were also observed and discussed.

From 19:00 to 21:30, we held an open lecture for the citizenry of Kikai Island in the municipal library. About 50 persons enjoyed the lectures of “Karst terrains” by Prof. P. Williams, “Conservation of caves” by Prof. D. Gilleson and “Development of terraces in Kikai Island” by Prof Y. Ota. These open lectures were very successful for Kikai citizenry because it was a good opportunity to recognize the scientific value and necessity for the conservation of nature in Kikai Island.

22 Aug.: We observed karstification on Holocene coral reef terrace at Araki coast. We visited the subsurface dam, which has been constructed for agricultural use at Wan, and discussed the future problems of the dam. Participants enjoyed the tectonic cave at Nanatei-gama.

23 Aug.: Sand dunes and soil profiles at Suitengu were observed.

The karstification on the terraces in Kikai and in Okinawa was discussed from the viewpoints of climate and human effects as well as tectonics. The ideas of participants were submitted to the municipal officers of Kikai and citizenry of Kikai Island.

Organizers would like to express sincere gratitude to Futenmagu Shrine, Ryukyu–cement Co. Ltd., Prof. Toshio Kawana, Kikaicho Municipally Office, National Subsurface Dam Office, and Kikai Daiichi Hotel. Especially Kikaicho provided a coach and drivers during the excursion to Kikai Island. This field trip was also supported by the students of Univ. of Ryukyus, Okinawa Univ., and Hosei Univ. (Tokyo).

Reporter: Kazuko Urushibara-Yoshino (Hosei Univ., <kazukouy@i.hosei.ac.jp>)

A4 (BOSO): Coastal Geomorphology and Environments

Leader: Takaaki Uda (Public Works Research Institute).
Co-Leaders: Ichirou Takeda (Kyoto Univ. of Education), Hidekazu Tsujimoto
A4: All members at the Byobugaura sea cliff, taken by Keiji Mizuno.

A4: Route map for the Boso excursion, drawn by Tsuguo Sunamura.
(Osaka Kyoiku Univ.), Keiji Mizuno (Osaka Kyoiku Univ.), and Hiroko Okazaki (Natural History Museum and Institute, Chiba).

Start: at Narita on 21 August 2001, End: at Chuo University on 23 August.

Participants (10 persons): Sandra O. Brizga (Australia), Bernard Dumas (France), Ireneée Heyese (Belgium), Denes Loczy (Hungary), Alain Marre (France), Nomura H. Lisa (Japan), Jeff W. Ollerhead (Canada), Jeannine Raffy (France), Teresa Ramirez (USA) and G. R. Whittecar (USA).

Guidebook: A4 size, 16 pages and 26 figures.

Route:
21 Aug.: Members checked in at the Hotel Narita Tokyu respectively, and a “Get Acquainted Party” was held at 8 p.m.
22 Aug.: Tour bus departed from Narita at 8:30 a.m. In spite of bad weather, many features were observed at the following stops.
  Stop 1: Byobuga-ura (Type-A platform, severely eroded coast).
  Stop 2: Iioka (view from an observatory)
  Stop 3: Node, lunchtime break.
  Stop 4: Katakai (sediment imbalance caused by human activities, broken sea wall).
  Stop 5: Taito-misaki, this stop was cancelled by severe weather condition.
  Stop 6: Kominato (Type-B platform).
  Stop X: Tanjoji temple.
  Stop 7: Kamogawa (plunging cliff).
Arrived at Hotel Accion Tateyama at about 7:30 p.m.
23 Aug.: Tour bus departed from Tateyama at 8:00 a.m. After a typhoon passed through, it was very fine and good for walking. We enjoyed the view of marine terraces from the top of the lighthouse.
  Stop 8: Nojima-zaki (Holocene marine terraces).
  Stop 9: Hiraiso, lunchtime break (sea food barbecue).
  Stop X: Umi-hotaru (service area of Tokyo Bay Aqualine), tea break.
Arrive at Tokyo (Chuo University, Venue) at about 5:00 p.m.

Reporter: Hidekazu Tsujimoto (Osaka Kyoiku Univ., <tsujimot@cc.osaka-kyoiku.ac.jp>)

A6 (SOYA): Field Experiments in Hydro-Geomorphology and Rock Control in Northern Hokkaido.

Leader: Yukiya Tanaka (Fukui Univ.: presently, Kyunghee Univ., Korea).
Co-Leaders: Kaichiro Sasa (Hokkaido Univ.), Yoshimasa Kurashige (The Univ. of Shiga Prefecture) and Yasushi Agata (Univ. of Tokyo).
Start: at Wakkanai Airport on 20 August 2001, End: at Wakkanai Airport on 22
A6: All members at the Teshio experimental forest of Hokkaido University; taken by Yukiya Tanaka.

A6: Route map for the Soya excursion, drawn by Yukiya Tanaka.
August.

**Participants** (10 persons): Batnasan Nyamsurengiin (Mongolia), Mathew John Brunengo (USA), Hwang Sang-Ill (Korea), Hwang Hayob (Korea), Moshe Inbar (Israel), Lee Min-Bu (Korea), Arnold L. O’Brien (USA), Mario Panizza (Italy), Jef Vandenberghe (Netherland) and Yoon Soon-Ock (Korea).

**Guidebook:** A4 size, 41 pages and 49 figures.

**Route:**

20 Aug: Members met at Wakkanai airport at 12:00 and took their lunch boxes. Tour bus departed from the airport at 1:00 p.m. and picked up one participant at Wakkanai railway station. It was so fine that Rishiri island could be seen rarely without clouds.

Stop 1: Rishiri Island viewpoint, typical strata volcanic island (view from an observatory of west side of Wakkanai city).

Stop 2: Sarobetsu mire, tilted marine terrace (view from an observatory and short walking for observation of wetland). Arrived at lodging house of Field Science Center for Northern Biosphere, Hokkaido University at about 5:30 p.m. After dinner, participants enjoyed a Japanese Spa (Ponpira hot spring) as an optional tour.

21 Aug.: Tour bus departed from the lodging house at 8:30 a.m.

Stop 3: Rock controlled hill-morphology (view from Ubushi, north of Teshio town)

Stop 4: Very rugged sandstone hill-morphology and outcrop of Pliocene fine sandstone (Kumagoshi pass, north of Hononobe town)

Stop 5: Very coarse textured mudstone and shale hill-morphology and outcrop of Miocene mudstone (quarry near Toyotomi hot spring)

Stop 6: Hydrological experimental site of shale drainage basin (near Toyotomi hot spring)

Stop 7: Outcrop of Pleistocene sandstone and lunchtime (Miyanodai observatory, north of Toyotomi town)

Stop 8: River morphology, Sasa (small bamboo) vegetation generated by forest fire, landslide of serpentine mountain (Teshio experimental forest of Hokkaido University)

Stop 9: Topographical change of channel and monitoring of riverbed sediment (Pankenai river, Nakagawa town)

Arrived at the lodging house at about 5:30 p.m.

22 Aug.: Tour bus departed from the lodging house at 8:00 a.m. and arrived at Wakkanai airport at 9:00 a.m. We left for Soya cape as an optional tour after we heard that we possibly could take the flight bound for Tokyo. We enjoyed the northernmost end of Japan, although Sakhalin Island could not be seen.
Stop 10: Periglacial landform (Soya cape).
Fortunately, we could take the flight to Tokyo at the scheduled time. The transportation, meals and accommodations of this excursion were supported by the Field Science Center for Northern Biosphere, Hokkaido University.

Reporter: Yukiya Tanaka (Kyungh ee Univ., <ytanaka@khu.ac.kr>)

Post-Conference Field Trips

B3 (OBARA): Mountain environments, field experiments in hydro-geomorphology and rock control in Central Japan.

Leader: Yuichi Onda (Univ. of Tsukuba).

Co-Leaders: Takashi Oguchi (Univ. of Tokyo), Tomoyuki Iida (Geo Research Inst.)
Maki Tsujimura (Univ. of Tsukuba), Hiroaki Sugimori (Univ. of Tokyo), and Hirofumi Shibano (Univ. of Tokyo).

Supporters: Takashi Gomi (Univ. of British Columbia) and Takeshi Shibayama (Univ. of Tsukuba).

Start: 29 August, Tokyo. End: 1 September, Nagoya, Tokyo or Narita.

Participants (9 persons): A.J. Conacher (Australia), H. Mills (U.S.A.), R.C. Sidle (Singapole), P. A. Dykes (U.K.), O. Slaymaker (Canada), C. Embleton-Hamann (Austria), R.G. Whittacar (U.S.A.), A. Pissart (Belgium) and F. Thomas (U.K.).

Guidebook: A4 size, 36 pages.

Scope: The field trip B3 focused on the mountain environment, various kinds of slope processes including shallow landslides, deep-seated landslides, related to their hydrological condition in very active landforms of mountains in central Japan.

Route:
29 Aug.: We visited high mountains in the Central Alps (Komaga-take) by cable car. Most of the participants climbed up to the mountain ridge to have a better view of the glaciated landforms.
30 Aug.: We visited the outcrop of an active fault, river terrace deposits (Photo 1), hydrometric monitoring site in Yotagiri watershed and debris flow in granite mountains, and deep seated landslides (Ohnishi-yama landslide; Photo 2) occurred in 1968 within a metamorphic rocks area.
31 Sept.: Because of bad weather, we could not access the hydrological monitoring site in the upstream of the Koshibu river. But, instead, we visited the earthflow and disaster prevention site at Oh-shika village. In the afternoon, we visited Obara Village where shallow landslide density varies with underlying geology, and thus runoff processes and resulting landforms were different (V-shaped...
B3: River terrace deposits of Yotagiri river (Photo taken by Yuichi Onda).

B3: Ohnishi-yama landslide (Photo taken by Yuichi Onda).
valley versus amphitheater valley). We held discussions about the mechanism of amphitheater formation at the field site.

1 Sept.: We visited Aichi Experimental Forest attached to the University of Tokyo, where long-term (more than 70 years!) field monitoring has been conducted in relation to vegetation recovery.

Reporter: Yuichi Onda (Univ. of Tsukuba, <onda@atm.geo.tsukuba.ac.jp>)

B4 (ONTAKE): Landslides, debris avalanches, debris flows in high relief mountain areas in Central Japan

Leader: Kazuo Okunishi (Kyoto Univ.).

Co-Leaders: Hiroshi Suwa (Kyoto Univ.), Makoto Kobayashi (Shinshu Univ.), Takehiko Kobayashi (Toyama Univ.), Atsuo Takeuchi (Toyama Univ.) and Kimio Inoue (Nippon Koei Co. Ltd.).

Supporter: Ken-ichi Nishiyama (Kyoto Univ.).

Start: at Tokyo on 29 August 2001, End: at Tokyo on 2 September.

Participants (15 persons): Rodrigues, S. C. (Brazil), Bognar, A. (Croatia), Lavigne, F. (France), Marre, A. (France), Wassmer, P. (France), Kis, E. (Hungary), Loczy, D. (Hungary), Schweitzer, F. (Hungary), De, S.K. (India), Brancaccio, L. (Italy), Savino, M. (Italy), Balteanu, D. (Romania), Dinu, M. (Romania), Brunengo, M. (USA) and Dunne, T. (USA).

Guidebook: A4 size, 103+18 pages,

Route:

29 Aug.: Different debris hazards were observed in Otari Village in the drainage basin of River Hime-kawa, one of the most violent rivers in Japan. After a trip from Tokyo by a JR train and a chartered bus, first the Kozuchiyama landslide was visited. The countermeasures for protecting a river and a road facing the landslide were discussed there. Next observations were performed for the landforms of a large-scale landslide at Mt. Manaita which dammed up River Hime around 500 years ago, and a debris flow disaster in 1996 at the Gamaharazawa Creek, a small tributary of R. Hime, with a loss of 14 human lives. Then we visited Mt. Shimizuyama landslide that turns frequently into a mudflow.

30 Aug.: River Ura-kawa, the most devastated tributary of River Hime-kawa, was visited. Devastation was induced by a gigantic landslide at Mt. Hieda in 1911 with a subsequent debris avalanche which rushed to the confluence with the main stream of River Hime-kawa and further causing a natural dam. We visited the landslide scar and a mass of debris in the Kanayamazawa basin that is still feeding frequent debris flows. Another part of the headwaters of River
Ura-kawa named Karamatsu-zawa was subsequently visited to examine the weathered volcanic rocks as a basic geological factor of the instability of slopes and a high rate of debris production. The engineering works to control debris flows and other types of sediment hazards were examined around the confluence with the main channel of River Hime-kawa. On the way to the accommodation (Holiday Villa for Citizens of Nagoya) in Otaki Village in the Mount Ontake area, an active fault in Hakuba Village at the headwaters of River Hime-kawa was visited.

31 Aug. and 1 Sept.: Two days were spent to examine the geomorphological features of the Ontake Landslide, subsequent debris avalanche and other mass movements induced by the 1984 Western Nagano Prefecture Earthquake. The Ontake Landslide (34 million m³) took place on the right side of the Denjo-gawa Creek in its headwaters and subsequent debris avalanche filled the valley. A part of the debris flowed on the lava plateau on the left side and further into another creek (Suzuga-sawa Creek). The first site visited in Mt. Ontake area was the lava plateau on the left side of the Denjo-gawa creek where both the source area of the Ontake Landslide and thin deposit of debris avalanche were closely observed. A distant view was limited due to cloudy weather, but an extraordinary mobility of the landslide and the debris avalanche was well recognizable.

The next day, we visited the reaches of the Denjo-gawa Creek, the Nigori-gawa Creek and River Otaki, along which the debris had rushed with an average velocity of about 20 m/s until it had stopped with a run-out distance of 12 km. Explanation was made for the engineering works for fifteen years carried out here to stabilize the fluvial processes and to mitigate the accelerated erosion and sediment discharge downstream, and critical discussion by the participants was followed. A few of the smaller scale landslides and the lake made by the natural dam were also visited.

A workshop on mountain hazards was held in the evenings of 31 August and 1 September to listen to all overseas participants, who provided their problems and ideas on the geomorphological approaches to the mountain hazards. Discussion that was continued until late evening included the evaluation of the roles of Japanese geomorphologists in engineering works in the sites visited during this excursion.

2 Sept.: Deposits of the Kiso-River Debris avalanche (Kiso-gawa Mudflow) in a prehistoric age was observed in the vicinity of Otaki Village in the morning before the trip to River Name-kawa. The Ministry of Land, Infrastructure and Transport is carrying out a systematic works project to observe the hydraulics of the debris flows that occur very frequently in this basin and to mitigate their
B4: In front of the hotel at River Hime-kawa area, in the morning of 31 August 2001.

hazards. Geomorphic and geological background of the works was also discussed until we left this basin to return to Tokyo.

2 and 3 Sept.: There was an optional tour to Nakatsugawa City on invitation by the mayor of Nakatsugawa. Ten participants joined this optional tour. After moving to a resort hotel in Nakatsugawa City late in the afternoon of September 2, sightseeing was enjoyed at a historical heritage of travelers’ inns. The next morning, we observed the restoration works on the western slope of Mt. Ena, which had been devastated by repeated occurrence of landslides of high densities. The subsequently geomorphic approaches to control the debris hazards due to landslides and debris flows were discussed in the city hall of Nakatsugawa.

Reporter: Kazuo Okunishi (Kyoto Univ., <okunishi@slope.dpri.kyoto-u.ac.jp>)

B7 (JALPS): Alpine geomorphology in Central Japan.
Leader: Norikazu Matsuoka (Univ. of Tsukuba).
Co-Leaders: Shuji Iwata (Tokyo Metropolitan Univ.), Shuji Yamada (Tokyo Metropolitan Univ.), Kotaro Fukui (Tokyo Metropolitan Univ.), Hiroshi Shimazu (Risho Univ.), Masaki Iwafune (Shigakukan Univ.), Atsushi Ikeda (Univ. Tsukuba) and Kazuomi Hirakawa (Hokkaido Univ.).
Start: at Tokyo on 29 August 2001, End: at Tokyo on 3 September.

Participants (15 persons): Jacques Schroeder (Canada), Monique Herbeuval (Canada), Matti Seppälä (Finland), Rivka Amit (Israel), Ezra Zilberman (Israel), Takeo Takano (Japan), Bernd Etzelmüller (Norway), Goncalo T. Vieira (Portugal), Carla Mora (Portugal), Andreas Kääb (Switzerland), Wilfried Haeberli (Switzerland), Ian S. Evans (UK), Derek N. Mottershead (UK), Laurence R. Davis (USA), Ralph A. Haugerud (USA) and Arnold L. O’Brien (USA).

Guidebook: B5 size, 72 pages.

Scope: The field trip illustrated geomorphological features of high mountains in central Japan. Topics covered glaciation, periglaciation, mass movements, geocology, tectonics and volcanisms. Part of the itinerary was shared with the field trip B8. The trip was co-sponsored by the IPA Working Group “Periglacial Processes and Environments” and IGU commission on “Climate Change and Periglacial Environments”.

Route:
29 Aug.: The party drove toward the northern part of Northern Japanese Alps. Left Chuo University, Tokyo, at 8:30 by bus, took Kanetsu and Joshinetsu Motorways to Nagano, and entered in the Alpine Route that crossed two high mountain ranges and a deep valley by bus and cable cars. Arrived at a mountain lodge in Murodo (2,500 m a.s.l.), Tateyama region.

30 Aug.: The party walked in the Tateyama Mountains. After a stop at Yamasaki Cirque with explanation on glaciation by B8 leaders (Y. Ono and T. Kawasumi), the party was divided into the periglacial and glacial (with B8) groups. The periglacial group took a hiking path to Kuranosuke Cirque, where K. Fukui presented his doctoral research on mountain permafrost and an inactive rock glacier. Then the group followed a hiking path to the summit of Mt. Tateyama (3,015 m a.s.l.) and returned to Murodo. In the late afternoon, the party left Murodo by bus, stopped at Sabo Museum to see excellent exhibitions on protection works against natural hazards and finally arrived at a hotel with hot spring in Ohyama.

31 Aug.: The party moved to the southern part of Northern Japanese Alps. About 3 h drive by bus took to the summit area of Norikura Volcano (3,026 m a.s.l.), where the party observed modern patterned ground, past (possible) glacial landforms as well as lava domes and flows (guided by a B8 leader, H. Hasegawa). In the afternoon, the party visited Kamikochi, one of the most popular sites for tourism, to see glacial valleys and fluvial landforms. Then the party was divided into Group A (stayed in Kamikochi), Group B (moved by bus to Kofu) and B8 (moved by cars to Gamada River basin).

1 Sept.: Group A walked in Azusa valley to discuss debris flows, fluvial processes and geocology along a mountain stream in Azusa valley (guided by S. Iwata, H. Shimazu and M. Iwafune). Stayed again in Kamikochi. Group B, comprising hard walkers, climbed Mt. Kitadake (3,192 m a.s.l.) in Southern Japanese Alps, the second highest mountain in Japan, to experience rapid uplift and erosion of Japanese mountains during the Quaternary (guided by N. Matsuoka and K. Hirakawa): the altitude difference was 1,700 m. Overnight at a high mountain lodge.

2 Sept.: Group A moved to Ina valley and joined B8 party. A cable car took the group to Senjojiki Cirque, Central Japanese Alps, where Late Quaternary glaciation was discussed (guided by B8 leaders, T. Aoki and Y. Ono). In the late afternoon, the joint group moved to Kofu. Group B followed a mountain ridge to Mt. Ainodake (3,189 m ASL), where N. Matsuoka demonstrated monitoring technology for various periglacial processes. In addition to modern periglacial processes, topics also included mountain permafrost and fossil rock glaciers (by A. Ikeda), rock slides and creep (by S. Yamada) and Quaternary glaciation. Sunny weather permitted the participants to enjoy spectacular alpine landscape in the Japanese Alps and Mt. Fuji. In the afternoon, Group B walked
down the steep slope again and returned to Kofu by cars. All of the B7/B8 participants joined at a hotel in Kofu. The dinner was accompanied by a small concert by the participants.

3 Sept.: The B7/B8 joint party left Kofu for Fuji Volcano. The first stop was at Narusawa Ice Cave (lava tube), where discussion was focused on ice preservation despite the positive mean annual air temperature (explanation by N. Matsuoka). Next, the bus took the party to the middle (2,300 m a.s.l.) of Mt. Fuji, although the rainy and foggy condition prevented the view of the highest mountain in Japan. The topics included permafrost distribution on a volcano (by A. Ikeda) and history of volcanism (by H. Shimazu). In the afternoon, after a short stop at Hakone Volcano, the party returned to Tokyo in stormy weather.

**Reporter:** Norikazu Matsuoka (Univ. of Tsukuba, <matsuoka@atm.geo.tsukuba.ac.jp>)

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**B8 (IGCP): Quaternary glaciation of the Japanese Alps**

**Leader:** Yugo Ono (Hokkaido Univ.).

**Co-leaders:** Hirohiko Hasegawa (Meiji Univ.), Tatsuto Aoki (Hokkaido Univ.) and Takaaki Kawasumi (Tokyo Metropolitan Univ.).

**Supporters:** Nobuyuki Matsushima, Hajime Iida (Tateyama Caldera Sabo Museum), Nobuyuki Takahashi (Hokkai-Gakuen Univ.), Kiyoshi Saito (Miyagi Univ. of Education), Nobuo Yamamoto (Azumi Village), Akihiro Amaizawa (Meiji Univ.), Reisuke Kondo (Meiji Univ.) and Keiko Konya (Hokkaido Univ.).

**Start:** at Tokyo on 29 August 2001, **End:** at Tokyo on 3 September. (With B7)

**Participants** (7 persons): Johann Baeumler (Germany), Margot Bose (Germany), Lasafam Iturrizaga (Germany), Ulrich Kamp (USA), Matias Kuhle (Germany), Frank Lehmkule (Germany), and Regina Poeh Hacker (Germany).

**Guidebook:** B5 size, 72 pages. (With B7).

**Scope:** The aim of the excursion B8 is to visit several important sites to discuss the extent and chronology of Pleistocene glaciation in the Northern and Central Japanese Alps. The excursion route is partly overlapped with that of excursion B7.

**Route:**

29 Aug.: The participants of these two excursions left Tokyo together by bus and followed the “Alpen Route”, to Mt. Tateyama. On the first evening, they arrived at Murodo mountain hut located on the glaciated volcanic plateau, after passing the Kurobe Canyon and Tanbodaira Cirque by bus, underground cable car and ropeway.

30 Aug.: They observed the glacial landforms and deposits around Murodo,
Yamasaki Cirque and Jigokudai Solfatara. The main points of discussion were the extent, ELA and chronology of the glaciation at the eastern face of Mt.Tateyama (guided by Y. Ono and T. Kawasumi). After leaving the mountain, the participants visited Tateyama Sabo Museum at the foot of Mt.Tateyama, which served a very well-prepared exposition and movies to explain the landslide, debris flow, flood and thick snow accumulation characterizing the nature of Mt.Tateyama (guided by H. Iida).

31 Aug.: The third day was devoted to the visit of the summit area of Mt. Norikura, a volcano at the south of Mt.Tateyama. Although the weather was foggy, they visited the patterned ground site and discussed the actual periglacial processes (guided by H. Hasegawa). In the afternoon, the parties were divided into three, and B8 moved to Gamada Valley, western side of the Yari-Hotaka range. On this night, the participants enjoyed an open-air hot spa.

1 Sept.: The party climbed up to Hidari-mata glaciated valley to discuss the glacial fluctuation (guided by H. Hasegawa). We saw some outcrops of tills and discussed the fabrics of sediments. The outcrops are located in the deep valley and participants walked out on trails and crossed many tributaries. In the afternoon, we moved to Azumi Village and saw the “Hettner Stein” (guided by N. Yamamoto). This rock is the historical heritage of the study of the glacial
morphology in Japan. At night, we stayed at Ina valley, between the Central and Southern Japanese Alps, and held a small party with German Wine and Japanese Sake.

2 Sept.: In the morning, we moved around Ina valley to see the tephra layers and active faults on the river terraces (guided by N. Matsushima). Ina Valley is one of the most tectonically active areas in Japan. In the afternoon, we joined B7-A at the foot of the Mt. Kiso-Komagatake, Central Japanese Alps, and climbed up to the Senjojiki cirque by bus and ropeway. After discussing the glacial chronology at the bottom of Senjojiki Cirque (2,600 m ASL; guided by T. Aoki), all of the participants climbed up to the ridge (ca. 2,900 m ASL). In the evening, we joined B7-B at a hotel in Kofu.

3 Sept.: This day, B8 moved with B7, and went to the Fuji Volcano (guided by B7 leader, N. Matsuoka, H. Shimazu and A. Ikeda) and Hakone Volcano. In the late evening, the party returned to Tokyo.

**Reporters**: Yugo Ono (Hokkaido Univ., <yugo@ees.hokudai.ac.jp>)
Tatsuto Aoki (Hokkaido Univ., <kent@pop.lowtem.hokudai.ac.jp>)

**B9 (KANTO): Fluvial and tectonic landforms in Central Japan: Kanto and Chubu districts.**

**Leaders**: Hiroo Ohmori (Univ. Tokyo) and Kyoji Saito (Saitama Univ.).
**Co-leaders**: Shigeko Haruyama (Univ. Tokyo), Shunji Ouchi (Chuo Univ.), Sumiko Kubo (Waseda Univ.) and Toshihiko Sugai (Univ. Tokyo).
**Supporters**: Jack H. Iguchi (Aomori Univ.), Sin-ichi Tanikawa (Univ. Tokyo), Haruki Owada (Univ. Tokyo) and Atsuko Terazono (Univ. Tokyo).
**Start**: at Tokyo on 29 August 2001, **End**: at Tokyo on 3 September.

**Participants**: (16 persons): Richar Dikau (Germany), Renate Dikau (Germany), Brian L. Finlayson (Australia), Waclaw Florek (Poland), Monique B. Fort (France), Iénée Heyse (Belgium), Enrio Miccadei (Italy), Piotr Migon (Poland), Edyta Pije-Migon (Poland), Jeff W. Ollerhed (Canada), Jean-Pierre Peulvast (France), Tommaso Piacentini (Italy), Masaaki Yamaguchi (Japan), Kohei Matsunaga (Japan), Ryutaro Naruhashi (Japan) and Hidetsugu Yoshida (Japan)

**Route**: The trip was carried out following the schedule and contents.

29 Aug.: Departure from Chuo University at 8:30. The first stop on the Tomei Highway, we enjoyed a basin and range landscape of faulting blocks of the Ohiso Hills, but unfortunately we could not see the whole of Mt. Fuji. Stop 1-‡: Tagonoura Coast in the morning, active coastal erosion and protective concrete huge blocks. After lunch, Stop 1-‡: Fuji River fan delta, Stop 1-‡:
Karigane embankment and active faults around the Fuji River. Arrival at hotel: 18:00, Accommodation: Fuji Heights Inn (Fuji City).

30 Aug.: In the morning, Stop 2-‡@: Sengen Shrine and Wakutama Pond; traditional shrine and spring with torrential water from Mt. Fuji, Stop 2-‡: Fuji lava flowed along the upstream of Old Fuji valley and Stop 2-‡: braided channels of the middle reach of the Fuji River. Lunch under the sky at Shingen Embankment. In the afternoon, Stop 2-‡: Shingen Embankment, taking a walk along the embankment, Stop 2-‡: Ichinose Hills at the western margin of Kofu Basin; tilting Pleistocene alluvial fan uplifted by active faults. On the Chuo Highway to the hotel, we enjoyed a view of Suwa Lake. Arrival at hotel: 18:00, Accommodation: Komagane-Suzuran-So (Komagane City).

31 Aug.: In the morning, Stop 3-‡@: Ohtagiri River and its Alluvial Fan, Stop 3-‡: Tephra covering fluvial terraces in the Ina Valley and Stop 3-‡: Outcrop of the Tagiri Fault; a typical active fault visibly deforming the Pleistocene fluvial terrace surface. Lunch at a restaurant in Komagane Service Area on the Chuo Highway. In the afternoon, the route runs in the Kiso Valley, one of the deepest valleys in Japan. Stop 3-‡: Matsukoshi Landslide Scar which occurred on 14 Sept, 1984, and killed 29 persons, destroyed 4 houses and main roads. Arrival at hotel: 18:00, Accommodation: Nagoya shimin Ontake Kyuka-mura (Otaki Village).

1 Sept.: In the morning, Stop 4-‡@: Ontake Landslide Scar, occurred on 14 Sept, 1984 on the flank of the Ontake volcano (3063 m), killed 19 persons, the largest landslide in modern in Japan. Stop 4-‡: Differentiation of river segments running on thick deposits, and Stop 4-‡: Terrace deposits along the Nigori River. After a Japanese style luncheon. Stop 4-‡: Channels in Erosion Area of the Nigori and Denjo Rivers and Sabo Construction were observed with the discussion about landslide processes and natural hazards. Arrival at hotel: 18:00, Accommodation: Sanpia Matsumoto Hotel (Matsumoto City).

2 Sept.: On the way to the experimental site of vegetation response to global warming has been carried on the Norikura volcano (3025 m), we could see changes in vegetation zones, and many types of volcanic landforms such as cones, lava plateaus and lakes. Stop 5-‡@: Experiment for the global warming effect on vegetation growth; 5 small greenhouses set over alpine plant communities for analysis of the differences in seasonal change in vegetation growth and phenology between inside and outside of the greenhouses. After a western style luncheon, Stop 5-‡: Flood control and vegetation change along the Azusa River running through Matsumoto Basin. On the Nagano Highway to the hotel, we could see many types of landforms including landslides. Arrival at hotel: 18:00. Dinner party at the restaurant of the hotel, enjoyed
Karaoke almost all night. Accommodation: Myogi Green Hotel (Myogi Town).

3 Sept.: In the morning, Stop 6-B: Outcrop of the Usui River terrace of thick gravelly deposits covered with tephra layers, Stop 6-A: Isobe fault scarp cutting the Usui River terrace levels; a fault with continuous activity through late Pleistocene and Holocene. Lunch at a restaurant on the 31st floor of the Gunma Prefecture Government Building in Maebashi City, served with steak and wine. After lunch, we freely enjoyed a wide prospect of the Kanto Plain from the lookout platform on the 32nd floor and visited the exhibition rooms on the 31st and 26th floors of the building. On the Kan-Etsu Highway to Tokyo, we encountered heavy rain for the first time during the trip. It was an exciting and important experience for the participants from foreign countries. Arrival at Tokyo Station: around 17:30 under a slight rain.

Reporter: Hiroo Ohmori (Univ. Tokyo, <ohmori@k.u-tokyo.ac.jp>)

One-day Excursions

All One-day Excursions started and ended at the Venue (Korakuen Campus, Chuo University) on 27 (Monday) August 2001.

D1 (Nikko and Ashio): Erosion control on stratovolcanoes, devastated terrain due to copper refining, talus, falls, lake, and famous traditional shrine.
Leaders: Takayuki Ishii (Osaka Kyoiku Univ.) and Eiji Matsumoto (Univ. of Tsukuba).

Co-leaders: Hidekazu Tsujimoto (Osaka Kyoiku Univ.) and Mieko Sonoda (Kyoto Univ.).

Participants: 20 persons.

Guidebook: A4 size, 10 pages.

Scope: This course had several purposes. First, observe the debris-covered slopes such as talus slopes caused by forest fire and gas pollution associated with copper refining, and also to do Sabo construction works to prevent debris movement. Second, observe and discuss the gully incision and erosion control on the slopes of Nantai stratovolcano. Third, observe the Kegon waterfall formed by damming up due to Nantai lava flows. Fourth, sightseeing of the famous traditional shrine Toshogu.

Route:
Spot 1 (Toshogu shrine): Many participants had an interest in the training practice of Kendo (Japanese style fencing) on the way to Toshogu shrine. Free sightseeing was made in the Toshogu shrine.
Spot 2 (Tunnel exit and its environs) Brief observation of the debris slope that was covered by the forest at this location was done. An explanation on a role of dry fragment flow was done. One question asked on an evidence of dry fragment flow deposits seemed to be solved by the observation of cross section of them.
Spot 3 (Ashio Sabo Dam and its environs): An explanation was made on the history of the Ashio devastated land and the talus slopes researched here. Planting and Sabo construction works, which have been continued on mountain steep slopes for a long time, changed the bare landscape for vegetated green slopes. Therefore, it was impossible to observe the active talus slopes there. However, some participants seem to have had an interest in the Sabo construction works.
Spot 4 (Akechi daira): Regretably, it was impossible to see Mt. Nantai because of the foggy condition, although an explanation was done on gully development and Sabo construction works at the mountain flank.
Spot 5 (Chuizenji): We visited a famous waterfall called Kegon-no-taki. An explanation was done about the forming processes of the waterfall in relation to the Lake Chuizenji and Mt. Nantai. Although only the waterfall was planned for the field trip, many participants went to see the lake.

Reporter: Takayuki Ishii (Osaka Kyoiku Univ., <ishii@cc-net.or.jp>)

D3/D4 (Tsukuba Science City and Tone River): National research facilities related to geomorphology, channel morphorogy, man-made channels.
Leader: Yosuke Komatsu (Univ. of Tsukuba).
Co-Leaders: Shunsuke Umetani (Shinagawa Public Works Research Institute) and Hiroshi Ikeda (Univ. of Tsukuba).

Participants: 24 persons.

Guidebook: A4 size, 17 pages and some appendixes

Scope: This excursion has two destinations: one is around the Tone River, the other is the experimental facilities in Tsukuba Science City which is the largest planned academic city in Japan.

Route:

Stop 1: External Excess Water Release Channel that is located between Naka River and Ayase River in the Tokyo Lowland. This facility will release floodwater from lowland to adjacent channel in order to prevent urban flood disaster. We looked inside a huge pump station under construction after an explanation was given by a slide presentation.

Stop 2: Sekiyado Prefectural Museum about history of the Tone River and human activities. The museum is attractive for overseas colleagues because the exterior and interior of the building are made in the shape of an old Japanese castle. Regrettably, we could not command an extensive prospect around from the top floor of the building because of the fog.

We had a snack, Japanese green tea and rice crackers, on the bus while observing landforms and land-use on fluvial terraces through the bus windows. Then, we enjoyed a relaxing lunch at a Chinese restaurant on the 19th floor of Tsukuba-Mitsui Building located in the middle of Tsukuba Science City.

Stop 3: Terrestrial Environment Research Center, University of Tsukuba has a Large Flume, which is one of the largest experimental facilities for fluvial geomorphology in the world. An explanation was made for the features of this experiment system and for the fluvial processes and effects of vegetation on stream landforms.

Stop 4: Public Works Research Institute (PWRI), which is the largest institute for civil engineering in Japan. We discussed aerodynamic stability of long-span bridges at the boundary layer wind tunnel laboratory. In addition, we called at the dynamic geotechnical centrifuge to simulate the behavior of a full-size earth structure during earthquakes.

We ate Japanese pears on the bus ride back to Tokyo.

We express our special thanks to the Edo River Work Office and the Sekiyado Prefectural Museum for providing convenience.

Reporter: Yosuke Komatsu (Univ. of Tsukuba, <komatsu@erc2.suiri.tsukuba.ac.jp>)

D5 (Boso Peninsula): Marine terraces, coastal landforms.

Leader: Mitsutoshi Yoshimura (Natural History Museum and Institute, Chiba).
Co-Leader: Reiko Yagi (Natural History Museum and Institute, Chiba).
Supporter: Manabu Higuchi (Graduate student of Chiba University).
Participants: 7 persons
Guidebook: A4 size, 10 pages, 4 maps.
Scope: Many destructive earthquakes have been recorded in the south Kanto region.
   Especially the 1703 Genroku Earthquake (M=8.2) and the 1923 Kanto Earthquake (Taisho Earthquake, M=7.9), which took place in historical period, brought distinct crustal uplift (partly subsidence) along the coast of the southern Boso Peninsula.
Route (Fig. 1):
Stop 1 (Nojimazaki): Holocene marine terraces formed by the repeated seismic crustal movements are distributed in the southern Boso Peninsula. We observed the Genroku terrace and the Taisho bench in Nojimazaki (Photo 1).
Stop 2 (Tateyama): The 1703 old shoreline.
Stop 3 (Nako): Some notches had formed before 1703. Old shorelines in historical period have been restored using old maps. The shoreline of the Tateyama Bay before the 1703 Genroku Earthquake was restored based on the position of the Hachiman Shrine in Tateyama (stop 2). Some notches distributed beneath the Nako-kannon (stop 3) were restored using old maps published in Edo era (Figs. 2 and 3).
Stop 4 (Iwai): The Ukishima Island is the late-Pleistocene marine terrace (about 50,000y.B.P.). We viewed the flat terrace surfaces from a distance.
Stop 5 (Hota): Historical documents and old maps show that the Hota lowland in the southern part of the Boso Peninsula was subsided at the time of the 1703 Genroku Earthquake. The amount of subsidence was inferred to be about 0~0.9 m on the basis of geomorphic dating.
   All participants (Photo 2) were interested in the well-known marine terraces formed by seismic crustal movements along the coast of the southern Boso peninsula, and they were also interested in some caution-notices of Tsunami showing along the main streets of seaside towns. We did not have enough time for observation in the field because the original plan (Rock control and fluvial landforms in the Boso peninsula) had been suddenly changed on that day by all participants' requests and the investigated areas were so far from Tokyo as a one-day excursion. Therefore, our bus was one hour behind schedule in arriving at Chuo Univ. We, the leaders, express our gratitude to the members of D5 Field Trip and the bus driver for their help and kind cooperation.
   Reporter: Reiko Yagi (Natural History Museum and Institute, Chiba.
<yagi@chiba-muse.or.jp>
Fig. 1. A route map for the D5 excursion (Base map: 1:200,000, Ohtaki and Yokosuka, Geographical Survey Institute).

D5: Participants observed the Genroku terrace and the Taisho bench at Nojimazaki.
Fig. 2. Part of an old map (*Tateyama-ura-ezu*) along the Tateyama bay.

D5: All members at the seaside in Hota.
D6/D7 (Miura Peninsula and Kamakura): Active faults, raised beaches, coseismic uplift, Pleistocene marine terraces, old shrines and temples.

Adviser: Mitsuhisa Watanabe (Toyo Univ.).
Leaders: Takashi Azuma (Nuclear Safety Commission), Masanobu Shishikura (National Institute of Advanced Industrial Science and Technology) and Sumiko Kubo (Waseda Univ.).
Supporter: Tetsuya Komatsu (Undergraduate student, Waseda Univ.).
Participants: 9 persons.
Guidebook: A4 size, 16 pages.
Scope: The aim of this trip was to introduce tectonic landforms associated with active faults, raised coastal features accompanied by major earthquakes and marine terraces of late Pleistocene and Holocene in the Miura Peninsula, south of Tokyo and Yokohama. Four stops were arranged in this course: Stop 1,
D6/D7: Participants in the front of Daibutsu.

Takeyama Fault (excavated site), Stop 2, Jogashima Island (raised coast), Stop 3, Arasaki (Pleistocene terrace) and Stop 4, Temple of Great Buddha (Kohtokuin Temple) in Kamakura.

Route: We passed through central Tokyo and over Rainbow Bridge on the port of Tokyo, Haneda Airport, the city of Yokohama via Metropolitan Expressway, and hilly land of Miura Peninsula via Yokohama-Yokosuka Road, and reached Stop 1 about 11:00.

Stop 1: The Stop 1a was an observation point at 60 m a.s.l. on the terrace surface (Isotope stage 5a) while the Stop 1b was an excavated site in a small valley-bottom lowland. The Takeyama Fault moved repeatedly with an average recurrence interval of 2,000 years. Leaders explained this with photo panels of excavation, and participants with special interests paid much attention to those panels.

Stop 2: After having lunch at a seaside (driver’s) restaurant, we arrived at Jogashima Island (Stop 2). The participant observed two levels of fossil serpulid worms that correspond to the coseismic uplifts in 1703 and 1923, Pleistocene and Holocene terraces, and the Pacific Ocean.

Stop 3: We visited an outcrop of Pleistocene marine terrace (Isotope stage 5a) near Arasaki Coast. Marine deposits on Neogene basal rock are covered with several meters of volcanic ash soil, including pumice layers from Hakone.
Volcano in the west. This stop demonstrates the intense crustal, seismic and volcanic activities in this area.

Stop 4: Before coming back to Tokyo, we stopped at the Temple of the Great Buddha statue (Daibutsu) established in the 13th Century in Kamakura. It is said that the earthquake in 1498 destroyed the building which covered the statue. It was also a good stop for pictures (Photo).

Due to the traffic jam on the Expressway to Tokyo, we arrived at Chuo University late, around 19:20. We appreciate all the participants for their cooperation and fruitful discussions.

Reporter: Sumiko Kubo (Waseda Univ., <sumik@mn.waseda.ac.jp>)

D8 (Izu): Neotectonics and volcanism around Izu Peninsula.
Leader: Takehiko Suzuki (Tokyo Metropolitan Univ.).
Participants: 25 persons.
Scope: Izu Peninsula is one of the most active and attractive tectonic zones in the world because of its tectonic setting which resulted from the subduction and collision of Izu Bonin arc on the oceanic Philippine Sea plate to the Honshu arc on the Eurasian plate. The excursion was held mainly in the northernmost part of the peninsula, and the main points were the springs of ground water from Fuji Volcano, Tanna Fault (an active fault and its latest activity of the 1930 Kita (North)-Izu earthquake), and Higashi (east)-Izu Monogenetic Volcano Field.

Route:
We left Chuo University and traveled on Metropolitan and Tomei expressways to Izu Peninsula. Firstly, at Kakita-gawa Spring, a spring of ground water that comes from the Fuji Volcano, we observed a famous spring at the head of Kakita-gawa river. Here, we discussed the relationship of the geological structure and the movement of ground water. There were several questions and additional discussion on the formation of the edifice of Fuji Volcano composed of basaltic rocks.

The second area for the excursion was the Tanna basin, which was a tectonic depression originated from an active fault named Tanna Fault. Before visiting two observational points, we had lunch at a town-operated western style restaurant with an accompanying gift shop and factory of dairy and local products. Participants could feel and appreciate not only geoscience but also the dairy and land farming in a typical Japanese rural area. After lunch we visited a small memorial park designated as a natural monument of the 1930 Kita-Izu earthquake. We looked at the stone hedge showing left-lateral offset associated with the earthquake, and a geological section with the fault plane. The next stop was Karai shrine in the west.
part of the Tashiro basin located north to the Tanna basin. The Karai shrine is situated just on the fault trace, and the trace of 1930 fault passes between the shrine gate and the steps to the building. They show a left-lateral offset.

We left the Tanna basin for Higashi-Izu Monogenetic Volcano Field composed of cinder cones, tuff rings, maars, lava domes, small stratovolcanoes, lava and fissures and so on. There are many attractive volcanic landforms to look at. However, we did not have enough time to see all. Then, the leader planned to visit only one stop, Omuro-yama scoria cone, it was the representative and best looking scoria cone of this volcanic field formed 5,000 years ago. We did not have enough time to climb up to the top when we arrived at the foot of the cone. Responding to the request of participants, the leader decided to go to the top of the cone by using the lift. This was good for the excursion because this choice pleased every participant. Around the crater rim, we saw the Sagami bay and lava field effused from Omuro scoria cone. It seemed that participants were satisfied with the scenic landforms around the cone. After coming back from the top, we had a three-hour drive to Tokyo.

Reporter: Takehiko Suzuki (Tokyo Metropolitan Univ., <suzukit@comp.metro-u.ac.jp >)

D9 (Hakone Volcano): Active volcano, solfataras, hot springs, caldera, and volcanic landscape.
Leaders: Shigeo Aramaki (Nihon Univ.), Yukiko Hirata (Univ. of Tokyo) and Masashi Nagai (Univ. of Tokyo).
Participants: 39 persons.
Guidebook: A4 size, 16 pages.
Scope: The aim of this trip was to let the participants get an overall idea of Hakone volcano famous for its hot spring resort and caldera. Hakone started to grow ca. 400,000 years ago and has developed two successive calderas. The last magmatic eruption occurred ca. 3000 years ago resulting in partial collapse of the central cone and debris avalanche, pyroclastic flows and growth of a volcanic spine. By circling along the caldera rim and climbing to the centrals cones, the history and structure of Hakone complex can still be clearly seen.
Route: Leaving the campus of Chuo University in central metropolitan Tokyo by bus, we took the expressway which led directly to Odawara, a city rich in historic episodes located on the eastern foot of Hakone. Before reaching Odawara, our bus crossed the plate boundary between the North American and Philippine Sea plates. The boundary follows a broad valley structurally controlled by the Kozu-Matsuda fault. We then followed the route along Hayakawa river gorge, which is the only valley draining the main caldera.
Stop 1: Weather at Stop 1, located on the southern rim of the caldera, was clear enough to let us view the panorama of the interior of the caldera. After an introductory comment by the leaders, we had discussions about the structure and topography. Lunch was taken at the nearby restaurant where some participants enjoyed shopping for local souvenirs to take home.

Stop 2: Stop 2 was located on the southwestern rim of the caldera from where most of the post-caldera edifices (central cones and domes) could be seen. After the younger caldera was formed ca. 60,000 years ago following a large scale eruption of pyroclastic flows, seven lava domes and one small stratocone were formed roughly in the NW-SE direction. Immediately below us was Lake Ashi occupying the southwestern corner of the caldera. The lake was formed by damming up a stream by debris avalanche deposit from Kamiyama, one of the post caldera cones. Some structural features of the pre-caldera edifices could be observed. To the west of the caldera rim, we should have witnessed a beautiful cone of Fuji volcano but the weather prevented us from enjoying the view.

Stop 3: We then climbed down into the caldera floor, crossing a small river that drains the water of Lake Ashi, to reach Owaku-dani, a solfataric area formed after the last eruption of Kamiyama. The eruption was preceded by the partial collapse of the northern flank of Kamiyama generating debris avalanche. Next came the eruption of scoriaceous pyroclastic flows and finally leading to the generation of an extensive field of solfataric activity. Large parts of the hot springs inside the Hakone caldera are derived from the hot spring water of Owakudani. It is strongly acidic water and solfataras are playing actively with a loud noise of steam issuing as jets. There we visited the exhibition of the Natural History Museum run by the local government of Hakone town. Then we enjoyed viewing the bubbling springs at which they boil eggs and you can eat them on the spot.

We left Owakudani a little earlier because a traffic jam was expected. We climbed down along the Hayakawa River which drains the caldera to the east, passing Odawara and took the expressway back to Tokyo. Rather easily we reached Chuo University campus in due time and the party happily disbanded. The Japanese leaders thank the participants who were very cooperative, pleasantly curious and very much enjoyable.

**Reporter:** Shigeo Aramaki (Nihon Univ., <aramaki@chs.nihon-u.ac.jp>)

**D12 (Fuji Volcano):** Stratovolcano, lava flow, lakes, and timberline.

**Leader:** Yasushi Agata (Univ. of Tokyo) and Tatsuro Chiba (Asian Air Survey Co. Ltd.).
Participants: 37 persons.

Guidebook: A4 size, 22 pages.

Route:

After starting from downtown Tokyo, we moved to the west on Musashino terrace, which was covered with volcanic ash from Fuji volcano. Then we ran along the Katsura River valley, which was once filled with one of the major lava flow deposits of Fuji Volcano. We took the first stop at Fujino parking place of the expressway and observed the valley. In the bus, the erupotional history and the impacts to Japanese culture of Fuji were explained.

The second stop was Oshino-Hakkai water springs. This is a set of large water springs that flow out from Fuji lava flows. The participants observed clear water and deep pond, where we can see clearly the bottom at 10m deep. We discussed the age of the water and water balance of mountain body of Mt. Fuji. Also the importance of volcanoes as water resource was argued. Since there is a Japanese-style garden close to the parking, some participants enjoyed its beautiful scenery.

The next stop was Yamanashi Fuji Visitor Center. There is a nice display of nature and history of Fuji volcano with the English guide. Some participants asked the leader about the religious meaning of Fuji.

After taking lunch at the Visitor Center, we moved to Lake Motosu, one of three small beautiful lakes divided by a lava flow erupted in the 9th century. We can easily observe micro-landform of lava surface created by the contact of hot lava with lake water. The discussion there was mainly on the flow direction, cooling process of lava and chemical components of lavas erupted from Fuji volcano.

We moved next to Narusawa Volcano Museum. We were able to observe the 3-D geologic map and cross section of lava layers closely, there. Also we walked a nature trail around the museum. Along the trail, there were some interesting features made by basalt lava, such as big tree molds, lava caves and brister cones. Some big tree molds told us that there must have been thick forest made by big conifers (more than 1m in diameter) just before the eruption in the 9th century around there. Most participants eagerly made sketches or took photos.

Next we visited Funatsu lava cave. This cave was composed of some big tree molds and everybody was able to observe the cooling process of lava flow easily. Participants were interested in that the entrance was in the building of a Japanese shrine. Walking through the cave was some 'adventure' and most of them enjoyed it.

Finally, we climbed up to the observatory of the Mt. Fuji (2300m a.s.l.) via road (Fuji-subaru line) by bus. Along the way, the vegetation obviously changes. The observatory is close to the timberline. Although the weather condition was not so good for the whole day, we finally saw the summit of Fuji when the thick cloud diminished. It was just before finishing the excursion.
The leader (Agata) would like to make a deep apology to all participants for being very late in the morning due to some troubles with improving the guidebook. 

Reporter: Yasushi Agata (Univ. Tokyo, <agata@iis.u-tokyo.ac.jp>)

**D13 (Kofu): Landforms and deposits in tectonically active area, Kofu Basin.**

*Leader:* Hiroshi Shimazu (Rissho Univ.).

*Guest Supporter:* Kazuomi Hirakawa (Hokkaido Univ.).

*Supporters:* T. Aoki (Hokkaido Univ.), Y. Mishima (Graduate Student, Hokkaido Univ.), K. Nishi and M. Seto (Graduate Student, Rissho Univ.).

*Participants:* 23 persons.

*Guidebook:* A4 size, 21 pages and 2 maps.

*Scope:* This excursion focused on landforms and deposits in one of the most tectonically active areas of Japan, and on the works of the “Samurai” named Shingen Takeda, who struggled against severe floods in the Kofu Basin during the 16th century.

*Route:*

Stop 1 (Mt. Atago): Brief explanation of the geomorphology of the Kofu Basin and its surroundings as viewed from Mt. Atago looking down into the Kofu Basin. There was a discussion with K. Hirakawa, a co-leader. Interest was expressed in the uplift rate of the Southern Japanese Alps and in the subsidence rate of the basin.

Stop 2 (The Takeda Shrine): This shrine enshrines the spirit of Shingen Takeda, the local lord of this region, who completed river regulation systems in the Kofu Basin in the 16th century. We demonstrated the way to pray in a shrine.

(The fan apex of the Kamanashi River): An outcrop of the Nirasaki debris avalanche deposits and the Shingen Embankment. The Nirasaki debris avalanche was caused by a large landslide on the southeastern slope of the Yatsugatake Volcano about 0.3 Ma. We discussed the cause of the landslide and the recurrence interval of this type of disaster. Everyone was surprised at the volume of the deposits and their distance from the source area. On the Shingen Embankment, discontinuous embankments, like echelons, could be seen along both sides of the Kamanashi River. We described the regulation systems planned and constructed by Shingen Takeda.

Stop 3 (Nirasaki): View of the landforms of the Nirasaki debris avalanche deposits from the right side of the Kamanashi River. We observed many flow mounds on the surface. Near this point, we also observed modern check dam systems along a small and steeply sloped river. Many people asked why so many check dams were needed along such a small river.

Stop 4 (Ichinose Upland and Sone Hills): From the bus, we observed active flexure
scarps and active fault scarps.

Stop 5 (The Oshide River): 20-minute walk along the bank of the raised bed river. Many people were interested in how the river passed over a railway and roads, and in the high rate of landform change. We discussed the relationship between river regulation and channel bed elevation.

Reporter: Hiroshi Shimazu (Rissho Univ., <Shimazu@ris.ac.jp>)
The meeting of young geomorphologists was held at the Venue of the 5th ICG on 26 August, from 16:00 to 17:30. About 70 participants from more than 17 countries attended the meeting. Prof. D. Brunsden (UK) gave a talk entitled “Geomorpholia”, emphasizing the importance of taking the data out of the field, stressing that the young should not be afraid of predictions from those who made models, and explaining the importance of the role of geomorphology in earth sciences and engineering practices. The talk encouraged young geomorphologists very much. Fruitful discussions were held after his talk.

After the meeting, a casual style party was held at “TENGU” (Suidobashi branch), an Izakaya-type of restaurant, located 15 minute walking distance from the Venue on 26 August from 18:00 to 20:00. More than 60 young geomorphologists enjoyed the party free of charge and kindly thanked the donors from the young at heart self-styled pseudo-geomorphologists living in Japan. Interaction among young geomorphologists from many countries looked very successful with the beer and Japanese sake that were not exhausted.

Convenor: Yuichi Onda (Univ. of Tsukuba, <onda@atm.geo.tsukuba.ac.jp>)

REPORTS ON SOCIAL EVENTS

Welcome Party

The welcome party, which was sponsored by the Japanese Geomorphological Union (JGU), was held on 24 August, the registration day of the conference, at Cafeteria “SUEHIRO” of Chuo University, Korakuen Campus, from 17:30 to 19:30. About 150 participants attended and enjoyed the evening over Japanese food and drinks, thereby renewing old friendships and/or making new acquaintances. A barrel (18 litre) of Japanese Sake (rice wine) was served as a special gift from the JGU, which many of the attendants tried for the first time in their life, thus the first introduction to Japanese culture. Prof. Masamu Aniya of the University of Tsukuba moderated the evening with assistance from Prof. Kazuko Urushibara-Yoshino of Hosei University.

Reception

The reception, the main social event of the conference, was held at the renowned Akasaka Prince Hotel on 25 August from 18:30 to 20:50, with over 400 guests. This was hosted by the JGU and Chuo University, and arranged and
moderated by Profs. Aniya and Urushibara-Yoshino. After Prof. Aniya gave a brief welcome address, toast was given by Professor Emeritus H. J. Walker of Louisiana State University, USA, first senior fellow of IAG. He is a charter member of the JGU and gave a story behind the birth of the JGU in 1979. While guests were devouring fine Japanese food and drinks including special bottles of Japanese Sake, which were brought by local JGU members for this occasion, a slide show was presented in the corner of the banquet hall, showing landforms of Japan. Fine photographs of distinctive landforms of Japan were donated by the JGU members and aerial survey companies for this occasion. As a highlight of the evening, the Japanese Taiko (drum) was performed from 19:40 to 20:00 by a group of Sukeroku-style Taiko on the stage. To many of the attendants, this was probably the first experience of the Japanese Taiko, and they listened to and watched it intently. Around 20:50, we had to adjourn the party, although a lot of people lingered on in the room even after closing. We, the organizers of the evening, are very pleased with good attendance.

**Farewell (Sayonara) Party**

The farewell party (cost 3,000 yen) was held on 28 August, the last day of the conference before departing for field trips, at Cafeteria “SUEHIRO” of Chuo University, Korakuen Campus, from 17:30 to 19:30. Some 200 participants joined this party for the last chance of talking with colleagues, saying “good-bye and see you again in four years in Spain.” In addition to regular Japanese food and drinks, special bottles of Japanese Sake were served again, which were donated by local JGU members. Prof. Takasuke Suzuki of Chuo University, chair of the organizing committee, was thanked for the successful conference and presented a T-shirt inscribed with autographs of many senior geomorphologists and a baseball cap of the Seattle Mariners by Prof. Olav Slaymaker of the University of British Columbia, president of the IGC. Prof. Mateo Gutierrez Elorza, a representative of Spain who will host the next ICG in 2005, and Dr. Irasema Alcantara-Ayala, a representative of Mexico where a regional conference will be held in 2003, gave speeches and sang their native songs, thereby cheering up the atmosphere of the party. Responding to their performance, some members of the Japanese organizing committee joined them, singing Japanese songs. The evening was prepared by Profs. Aniya and Urushibara-Yoshino and moderated by Prof. Yugo Ono of Hokkaido University.

**Flower Arrangement (Ikebana) and Tea Ceremony (Chanoyu)**

These events were held in a classroom of Chuo University, Korakuen Campus, in order to expose accompanying persons to some aspects of the old Japanese culture. 12 persons participated in the flower arrangement, which was conducted from 10:00 to 12:00 by Ms. Onko Maezuru. First, Master Maezuru explained the
basics of the flower arrangement, which was translated into English by Prof. Urushibara-Yoshino. After that, each participant was given a bunch of flowers and a basin with a needle mound for arrangement on their own.

In the afternoon from 13:30 to 15:30, the tea ceremony was held in the same room with 14 participants. The ceremony style is “Ryurei”, which is normally held outdoors with a table and chairs. The ceremony master was Ms. Sohan Araya, who came a long way for this occasion, bringing the authentic tea ceremony equipment such as awning, screen, fan, table, chair, iron kettle, cups and bowls among other small items in order to create an outdoor atmosphere. The procedure of the ceremony was explained and demonstrated with assistants, which was translated into English by Prof. Aniya. Then sweets and a cup of mild green tea were served to each guest.

Acknowledgements

We are grateful to Dr. Shunji Ouchi of Chuo University for arranging the “Welcome” and “Farewell” parties at Cafeteria “SUEHIRO”. The slide show during the reception was prepared and presented by students from Hosei University. We also appreciate those students from Hosei University who manned train stations to direct participants to Akasaka Prince Hotel for the reception.

Masamu Aniya (Univ. of Tsukuba, <aniya@atm.tsukuba.ac.jp>) and
Kazuko Urushibara-Yoshino (Hosei Univ., <kazukouy@ceres.dti.ne.jp>)
EXIBISION

During the Conference, spaces were provided free of charge for researchers and governmental organizations and were rented for commercial organizations. The exhibitions were displayed by the following:

Adam Net Ltd.,
CATENA VERLAG GMBH,
Chuo Kaihatsu Corporation,
Dia Consultants Co., Ltd,
Editorial Office of Acta Geographica Sinica
Elsevier Science K.K.,
E. Schweizerbalt’sche Verlagsbuchhandlung,
Geographical Survey Institute (Japan),
Hokkaido Chizu Co., Ltd.,
Hydrographic Department of Japan Coast Guard,
IAHS Press,
Japan Hydrographic Association,
John Wiley & Sons Ltd.,
Kokon-Shoin Co. Ltd.,
Kokusai Kogyo Co., Ltd.,
National Institute of Polar Research (Japan),
Nikkaki Bios Co.,
Oyo Corporation,
Tesco Inc.,
Union Engineering Ltd.
Report on ICG Questionnaire: Professional Contributions to Society as Geomorphologists

Takasuke Suzuki
(Chuo University, Tokyo, Japan. <takas@kc.chuo-u.ac.jp>)

This is a brief report on the “IAG Questionnaire: Professional Contributions to Society as Geomorphologists”, which was sent out in the venue of the Fifth International Conference on Geomorphology held in Tokyo, 23-28 August 2002. The Questionnaire was collected from 139 respondents, about one third of regular registrations to the Conference.

The purpose and contents of the Questionnaire are described below with a statistical analysis for the number of replies to each item and its percentage among the 139 respondents.

ICG QUESTIONNAIRE
Professional Contributions to Society as Geomorphologists

In order to make rapid and steady progress in geomorphology in the 21st century we must extend our workplaces to young geomorphologists and insure that geomorphology is useful to society. Thus, in addition to our performance in pure research and education we must increase our professional contributions to society above those of the 20th century. We believe that an exchange of our experiences will be meaningful in helping find new markets and additional customers for geomorphology not only in each country but also around the world.

Taking advantage of your presence at the 5th ICG, I would like to ask you to complete this questionnaire. Preliminary results will be reported at the Closing Ceremony and detailed in the Summary Proceedings of the Conference.

Thank you very much for your kind cooperation in advance.

Takasuke Suzuki (Chuo University, Tokyo): Local organizer of the 5th ICG

Q1. What field of geomorphology most interests you? Please write one or two key words: e.g. coastal geomorphology, active faults, GIS, Quaternary.

<table>
<thead>
<tr>
<th>Items</th>
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<th>%</th>
<th>Items</th>
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<tbody>
<tr>
<td>Tectonic geomorphology</td>
<td>21</td>
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<td>Hydrogeomorphology</td>
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<td>7</td>
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<td>Volcanic geomorphology</td>
<td>4</td>
<td>3</td>
<td>Glacial &amp; Periglacial geomorphogy</td>
<td>12</td>
<td>9</td>
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<tr>
<td>Process geomorphology</td>
<td>3</td>
<td>2</td>
<td>Karst</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Soil, weathering &amp; rock control</td>
<td>15</td>
<td>11</td>
<td>Quaternary</td>
<td>25</td>
<td>18</td>
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<td>Slope processes (general)</td>
<td>16</td>
<td>12</td>
<td>Historical geomorphology</td>
<td>4</td>
<td>3</td>
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<tr>
<td>Landslide</td>
<td>10</td>
<td>7</td>
<td>Environmental change</td>
<td>3</td>
<td>2</td>
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<td>Debris flow</td>
<td>3</td>
<td>2</td>
<td>Mapping</td>
<td>5</td>
<td>4</td>
</tr>
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<tr>
<td>Fluvial geomorphology</td>
<td>48</td>
<td>28</td>
<td>Modeling &amp; morphometry</td>
<td>5</td>
<td>4</td>
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<tr>
<td>Lake geomorphology</td>
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<td>1</td>
<td>GIS &amp; remote sensing</td>
<td>21</td>
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<td>Coastal geomorphology</td>
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<td>11</td>
<td>Applied geomorphology</td>
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<tr>
<td>Eolian geomorphology</td>
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<td>2</td>
<td>Engineering geomorphology</td>
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Q2. As a geomorphologist, have you ever served as investigator, consultant, adviser, commentator and/or policy maker at the request of any public organizations?

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<tr>
<th>Answer</th>
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<td>84</td>
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<tr>
<td>No</td>
<td>22</td>
<td>16</td>
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Q3. If your answer to Q2 is Yes, please indicate the location of the organizations.

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<td>Foreign country</td>
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<td>5</td>
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<tr>
<td>Both</td>
<td>40</td>
<td>29</td>
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Q4. As a geomorphologist have you ever served as a member of a public committee(s)?

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<td>No</td>
<td>54</td>
<td>39</td>
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Q5. If your answer to Q4 is Yes, please indicate which organization convened the committee(s).

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<td>Nation</td>
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<td>41</td>
<td>Private company</td>
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<td>31</td>
<td>Nonprofit organization</td>
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<td>City, town or village</td>
<td>31</td>
<td>22</td>
<td>Others</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Public agency</td>
<td>31</td>
<td>22</td>
<td></td>
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Q6. Have you ever served as a professional commentator on public concerns related to geomorphology (e.g. natural phenomena, environmental problems, disasters, construction plans) for TV programs, newspapers, public journals, etc?

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<td>Newspaper</td>
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<td>Radio</td>
<td>47</td>
<td>34</td>
<td>Others</td>
<td>10</td>
<td>7</td>
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</table>

Q7. Underline each of the geomorphological aspects for which you have served as a
Q8. What were the main problems to be solved in your public contribution(s)

A. Assessment and/or management of:

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<tr>
<td>Natural environment</td>
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<td>57</td>
<td>Man-made transformation of landform</td>
<td>39</td>
<td>28</td>
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<td>Natural hazards</td>
<td>85</td>
<td>61</td>
<td>Surface and ground water</td>
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<td>24</td>
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<td>Construction planning</td>
<td>25</td>
<td>18</td>
<td>Other*</td>
<td>2</td>
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</tbody>
</table>

*: including coastal management, near shore managements, etc.

B. Countermeasure against:

1) Natural disasters due to:

<table>
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<tr>
<th>Items</th>
<th>N</th>
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<th>Items</th>
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<tbody>
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<td>Earthquake</td>
<td>23</td>
<td>17</td>
<td>Coastal deposition</td>
<td>10</td>
<td>7</td>
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<tr>
<td>Tsunami</td>
<td>2</td>
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<td>Eolian erosion</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Volcanic activity</td>
<td>9</td>
<td>6</td>
<td>Sand drift</td>
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<td>Sand dune movement</td>
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<td>Slope failure (slump)</td>
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<td>30</td>
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<td>Heavy rainfall</td>
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<td>Strong wind</td>
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<td>35</td>
<td>Snow</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Fluvial deposition</td>
<td>27</td>
<td>19</td>
<td>Snow avalanche</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Flood</td>
<td>49</td>
<td>35</td>
<td>Glacier</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Coastal erosion</td>
<td>28</td>
<td>20</td>
<td>Freeze and thawing</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Coastal drift</td>
<td>8</td>
<td>6</td>
<td>Other*</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

*: including salt weathering, capillary rise,

2) Conservation of environment:

| Items                          | N  | %  | Items                          | N  | %  |

93
<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>%</th>
<th></th>
<th>Items</th>
<th>N</th>
<th>%</th>
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<tbody>
<tr>
<td>Forest</td>
<td>29</td>
<td>21</td>
<td>River</td>
<td>43</td>
<td>31</td>
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<tr>
<td>Marsh</td>
<td>15</td>
<td>11</td>
<td>Lake</td>
<td>19</td>
<td>14</td>
<td></td>
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<tr>
<td>Grass land</td>
<td>8</td>
<td>6</td>
<td>Coast</td>
<td>24</td>
<td>17</td>
<td></td>
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<tr>
<td>Sand dune</td>
<td>11</td>
<td>8</td>
<td>Glacier</td>
<td>5</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Mountain</td>
<td>26</td>
<td>19</td>
<td>Historic monuments</td>
<td>7</td>
<td>5</td>
<td></td>
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<tr>
<td>Hillslope</td>
<td>43</td>
<td>31</td>
<td>Other</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Valley</td>
<td>29</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

3) Planning and/or decision of construction sites for:

(a) large scale land-transformation including:

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>%</th>
<th>Items</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>new city</td>
<td>8</td>
<td>6</td>
<td>Land reclamation by drainage</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>new town</td>
<td>16</td>
<td>12</td>
<td>Artificial island</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Land reclamation by filling</td>
<td>6</td>
<td>4</td>
<td>Other</td>
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<td>0</td>
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</table>

(b) transportation including:

<table>
<thead>
<tr>
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<th>%</th>
<th>Items</th>
<th>N</th>
<th>% &amp;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road</td>
<td>36</td>
<td>26</td>
<td>Harbor</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Railway</td>
<td>8</td>
<td>6</td>
<td>Canal</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Tunnel</td>
<td>9</td>
<td>6</td>
<td>Airport</td>
<td>5</td>
<td>4</td>
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<tr>
<td>Bridge</td>
<td>7</td>
<td>5</td>
<td>Others</td>
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<td>0</td>
</tr>
</tbody>
</table>

(c) water systems including:

<table>
<thead>
<tr>
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<th>%</th>
<th>Items</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dam</td>
<td>28</td>
<td>20</td>
<td>Irrigation system</td>
<td>9</td>
<td>6</td>
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<tr>
<td>Groundwater well</td>
<td>9</td>
<td>6</td>
<td>Drainage system</td>
<td>21</td>
<td>15</td>
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</tbody>
</table>

(d) others including:

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>%</th>
<th>Items</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric power station*</td>
<td>13</td>
<td>9</td>
<td>Oil/gas/water pipelines</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Large-scale oil tanks</td>
<td>1</td>
<td>1</td>
<td>Other</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

* including nuclear power station.

Q9. What technique(s) have you applied to solve the problems above:

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>%</th>
<th>Items</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field observation</td>
<td>102</td>
<td>73</td>
<td>Field measurement</td>
<td>84</td>
<td>60</td>
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<tr>
<td>Map reading</td>
<td>83</td>
<td>60</td>
<td>Field experiment</td>
<td>42</td>
<td>30</td>
</tr>
<tr>
<td>Airphoto interpretation</td>
<td>101</td>
<td>73</td>
<td>Laboratory measurement</td>
<td>40</td>
<td>29</td>
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<tr>
<td>Satellite information analysis</td>
<td>48</td>
<td>35</td>
<td>Laboratory experiment</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>GIS</td>
<td>59</td>
<td>42</td>
<td>Theoretical simulation</td>
<td>24</td>
<td>17</td>
</tr>
<tr>
<td>Analysis of existing data*1</td>
<td>74</td>
<td>53</td>
<td>Finite element method*2</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Field measurement</td>
<td>84</td>
<td>60</td>
<td>Other</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*1: such as geological map. *2: including define element method.
Q10. Do you have your own consulting company that deals with geomorphological topics?

<table>
<thead>
<tr>
<th>Answer</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>No</td>
<td>123</td>
<td>88</td>
</tr>
</tbody>
</table>

Please add comments and/or experiences that illustrate and identify the ways geomorphology should and can contribute to society.

The following information is optional.

Your name _____________________________________________________

Birth year _________ Country ____________________________________

Affiliation: University, Other school, Government, Other public agency,
Company, Nonprofit organization, Other: ___________________________

Thank you very much again. Have a nice time at the 5th ICG!

Please put this questionnaire into the collection boxes in this Room or at the Entrance Lobby of Building No. 5.

Number of respondents for each country and region.

<table>
<thead>
<tr>
<th>Country</th>
<th>Algeria</th>
<th>Australia</th>
<th>Belgium</th>
<th>Brazil</th>
<th>Canada</th>
<th>China</th>
<th>Egypt</th>
<th>Fiji</th>
<th>Finland</th>
<th>France</th>
<th>Germany</th>
<th>India</th>
<th>Iran</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents</td>
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<td>4</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>4</td>
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<td>1</td>
<td>1</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>Country</th>
<th>Israel</th>
<th>Italy</th>
<th>Japan</th>
<th>Korea</th>
<th>Malta</th>
<th>Mexico</th>
<th>Mongolia</th>
<th>Nepal</th>
<th>Netherlands</th>
<th>New Zealand</th>
<th>Norway</th>
<th>Poland</th>
<th>R. Croatia</th>
<th>Mongolia</th>
</tr>
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<tbody>
<tr>
<td>Respondents</td>
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<td>13</td>
<td>18</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
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<td>1</td>
<td>1</td>
<td>1</td>
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</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Romania</th>
<th>Russia</th>
<th>Slovakia</th>
<th>Slovenia</th>
<th>South Africa</th>
<th>Sweden</th>
<th>Switzerland</th>
<th>Taiwan</th>
<th>UAE</th>
<th>UK</th>
<th>USA</th>
<th>Venezuela</th>
<th>Unknown</th>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>8</td>
<td>15</td>
<td>1</td>
<td>16</td>
</tr>
</tbody>
</table>

Among all respondents, 103 persons are working at university, and others are working at Government, Public agency, Nonprofit organization, etc.
Birth year distribution of respondents.

<table>
<thead>
<tr>
<th>Birth year</th>
<th>N</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>1920~1929</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>1930~1939</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>1940~1949</td>
<td>32</td>
<td>23</td>
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<tr>
<td>1950~1959</td>
<td>22</td>
<td>16</td>
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<tr>
<td>1960~1969</td>
<td>33</td>
<td>24</td>
</tr>
<tr>
<td>1970~1979</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Unknown</td>
<td>25</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>100</td>
</tr>
</tbody>
</table>

Brief analysis of statistic data for the Questionnaire

Statistic data above show the trends of how the respondents have contributed to societies as geomorphologists. According to my tentative analysis of the reply from each individual, their activities will be summarized as follows.

1. Most of the active contributors to society are naturally career geomorphologists older than 40 years in age and those who are much concerned with process geomorphology such as mass movements, fluvial and coastal processes and rock-control problems, in addition to applied and engineering geomorphology (related to Q1).

2. I was very much pleased that more than 80% of respondents have experiences to serve at the request of public organizations (Q2) in their countries and/or foreign countries (Q3), and worked as a member of public committees (Q4) and as commentators in mass media (Q6). However, this high percentage may be because the respondents, about one third of regular registrants, have been very much concerned with social problems, as compared with ‘common’ geomorphologists.

3. The geomorphological aspects for which geomorphologists have served as consultant cover a wide range of categories including disaster prevention engineering, hydrology, civil engineering and so on (Q7). Some items such as waste pollution, law, economy, insurance and historic monuments should be concerned by geomorphologists much more in the near future, because these soft items may involve various geomorphological aspects and become our new markets.

4. The main problems that have been solved by respondents are the assessment and/or management of natural hazards, natural environments, man-made transformation of landform, surface and ground water, and construction planning (Q8A). Also, important targets are the countermeasure against natural disasters due to mass movements, fluvial and coastal processes and earthquake in particular (Q8B-1), against conservation of environments related to almost all kinds of
landforms (Q8B-2), against the planning and/or decision construction sites for large-scale land-transformation, transportation facilities, water-system construction and large-scale structures (Q8B-3).

5. Various techniques in geomorphology have been applied to solve the problems above (Q9). However, a few laboratory experiments have been performed to solve the practical problems because of less experimental facilities in geography departments in university.

6. Geomorphologists who have their own consulting company that deals with geomorphological topics are 9% of the respondents (Q10). Some of them are working at university not only in developed countries but also in developing countries. Whether faculty staff is able to have one’s own company may depend on the condition of each country and university.

Comments from the respondents

Many comments and experiences useful for furthering our contributions to society were hand-written on the Questionnaire sheet by 30 respondents. They are classified into some categories and summarized below by combining the comments similar to and related to others, although some illegible hand-written comments are not cited here.

Education in geomorphology course

1. Lectures on the application of geomorphology should be emphasized at both the academic (such as university) and basic level. Production of Education films and videos would be helpful.
2. Introduce students to applications of geomorphology through informal seminars and meetings with practitioners, as well as through visits to field sites. This exposure should be continual throughout their student careers, and should include discussions of the legal, social, and economic context of geomorphological applications.
3. Papers on the application of geomorphology like case studies should be published much more in the geomorphology journals.

Advertisement to society and cooperation with “practitioners”

1. Geomorphologists should advertise what they can contribute to society.
2. There should be better cooperation and communication between academic/researcher geomorphologists, and the “practitioners”, such as geologists, hydrologists, civil engineers, forest engineers, politicians, planners, and managers, who must use the research results to solve applied problems.
3. We should work with the “practitioners” at the pre-feasibility stage of a development project. By anticipating the effect of future changes (such as climate change) on the physical environment with some success. By recommending proper management procedures in areas prone to natural hazards and areas
subjected to future development projects.

4. Providing training for engineers, scientists working in government agencies working on geomorphological problems, but who were not trained (formally) in geomorphology. Stressing the linkages between disciplines that deal with geomorphic problems (e.g. civil engineering, biology, chemistry, forestry) but that do not see the implications of their studies and projects.

5. The keys to advertisement and training are 1) recovering the jargon, 2) treating key people as intelligent, curious, concerned citizens. It is far better to work with rather than to lecture to. The general concepts of geomorphology are easy to understand. It is well that we remember this.

6. Be flexible and adaptable to clients’ needs. Be confident and firm in your abilities, but not boastful. Learn new techniques and technology as required; you will never have a complete package of such skills. Just keep working and thinking.

Subjects to be studied for practical purposes

1. Supply new concepts, methods and techniques to help manage the way of sustainable development: i.e. 1) assessment of human impact on degraded rivers and fluvial systems. 2) promoting sustainable techniques for river restoration (geomorphologic engineering replacing hard civil engineering works. 3) development of new approaches to surveying environmental changes (environmental observations).

2. Prediction/projection of extreme events in, e.g. floods, storm surge impact, river and coastal behavior.

3. Recognition of hazards: e.g. alluvial fan, flooding, channel incision, landslide potential, meander cutoff, etc.

4. Recognition of landforms that are stabilizing thereby reducing mitigation costs.

5. Identify sensitive landforms that have a high probability of failure.

6. Aid in planning of mined-land restoration.

7. Determine the best procedure for removal or stabilization of mine wastes.

8. Determine river channel characteristics favorable for endangered species of fish.


10. Determine landform history to aid in the prediction of change.

11. Understanding long-term evolutions of landscape and recognition of palaeo-forms of deposits. e.g. 1) large palaeo-landslides, 2) formation of exploration for mineral deposits, such as accumulation by selective weathering (in situ), deposition as heavy mineral placer deposits (e.g. diamond deposits in river systems, Ni-laterites in Cratonic regions, and gold in tropical pedsoils/white sand, silicate environments.

14. To be more involved in global environmental change. Create global concerns with environmental and biological conservation: Interaction between biology/ecology and geomorphology need to be promoted in addition to the obvious applications in land-use planning, environmental management and engineering projects.

The comments cited above are naturally not systematic but enumerative for a number of instances experienced by each colleague. For the systematic comments and discussions on the role of geomorphologists in our society, refer to D. Brunsden’s “Geomorphology sans Frontière” presented as the presidential address at the 3rd ICG in Hamilton, 1993, and the 1999 Binghamton Geomorphology Symposium entitled “Geomorphology in the Public Eye”. We should utilize this Questionnaire and the comments and discussions above in order to extend our workplaces and find new markets for young geomorphologists.

Finally, a recent situation for the contribution to society in Japan should be informed. The JGU members cover wide disciplinary affiliations (including pure and applied geomorphology, civil engineering, sabo engineering, geology, geophysics, hydrology and geography) and much concern with process geomorphology and quantitative researches. Accordingly, a number of the JGU members have served as professional consultants and important members of public committees in various organizations. Some of the JGU members have often been requested to serve as members of public committees for the geomorphology related problems: e.g. natural hazards, large-scale land-transformation, city planning (e.g. The Council for Relocation of the Diet and Other Organizations of Japan) and large-scale construction works (e.g. highway, Shinkansen railway, airport, harbor, etc.). Someone from the JGU memberships has usually acted as an excellent commentator for the severe natural hazards (such as those due to mass movements, earthquakes, volcanic activities, in particular) on the mass media including TV. Thus, it can be stated that contributions to society have been routine works at least for the JGU core-members.

It should be noted that a subject of “Engineering geomorphology” was opened as a half-year course in addition to “Engineering geology” on a regular curriculum of the Department of Civil Engineering at Kobe University (Kobe) and Chuo University (Tokyo) in 1995 simultaneously. This is one of the fruits made by the Japanese Geomorphological Union, because a professor who teaches “Engineering Geomorphology” is a civil engineer (Prof. T. Okimura) at Kobe and a geomorphologist (T. Suzuki) at Chuo. In order to spread geomorphological knowledge for civil engineers in Japan, T. Suzuki (1997, 1998, 2000) published
three volumes entitled “Introduction to Map Reading for Civil Engineers”. It is noteworthy that recently engineering geologists in Japan have much concern with geomorphology: e.g. Japan Society of Engineering Geology published a book entitled “Engineering Geomorphology of Mountains” in 2000. These books are written in Japanese, because the problems to be solved from the viewpoint of engineering geomorphology are closely related to the geomorphological setting of each country and are not always the same as those in other areas in the world.

Acknowledgements

Thanks are due to all respondents to the Questionnaire. This Questionnaire was financially supported by the Fukutake Science and Culture Foundation in Tokyo, Japan.
第5回国際地形学会議〔2001〕議事録
Summary of Proceedings of the Fifth International Conference on Geomorphology, Tokyo, 2001

編集 第5回国際地形学会議組織委員会
Edited by the Organizing Committee of the Fifth International Conference on Geomorphology, Tokyo, 2001

協賛 日本万博博覧会記念協会
Supported by the Commemorative Association for the Japan World Exposition (1970)