INTERNATIONAL PERMAFROST ASSOCIATION

Newsletter No. 4 January 1988

This is the fourth Newsletter of the International Permafrost Association (IPA). Items for inclusion in the next Newsletter are welcomed - just send them to the Secretary-General.

V INTERNATIONAL CONFERENCE ON PERMAFROST

A tentative agenda is given below. Suggestions for items to be included are welcomed.

AGENDA (tentative)

2 August 1988, 1300 - 1900 hrs.

1) Opening remarks of the President
2) Approval of the Agenda
3) Minutes of the First Council Meeting; matters arising from the minutes
4) Report on V Conference
5) Membership
6) Constitution
7) Report of Nominating Committee
   (a) Election of President
   (b) Election of Vice-Presidents
   (c) Appointment of Secretary-General
8) Finances
9) Committees and Future Activities of IPA
   a) Report of Ad Hoc Committee on Working Groups and IPA activities
   b) Committee and Future activities of IPA
10) International Affiliations (WFEO, IUGS, ICSI)
11) Newsletter
12) Logo
13) VI International Conference on Permafrost
14) Other business

NEWS ITEMS

FRANCE

In order to become a member of the International Permafrost Association, a group of French research workers, professors and engineers of private companies have since July 1984 actively considered the foundation of a French Permafrost Association.

Indeed, there presently exists in France two committees particularly concerned with permafrost problems. Nevertheless, these two groups are not permanent and this is a difficulty for a future French permafrost representation. It is interesting to give an idea of the present French activities in the permafrost area of these two groups, namely:

The "G.I.S. Arctique", Scientific Interest Group of the C.N.R.S., which brings together C.N.R.S. research workers, university specialists and representatives from various institutes. In this group, about 15 establishments, working in fields ranging from cryo-mechanics and heat transfer to human cryobiology, are represented. Expeditions at the Spitsberg French Station, doctoral training, etc., have been encouraged and directed by this committee.

The "Club C.R.I.N. Arctique", coming out from the G.I.S. Arctique, promotes the relationship between research and industry. This is a group incited by the C.N.R.S. Committee of Industrial Relations and is made up of C.N.R.S. research workers, university professors and representatives of industries concerned with petroleum, ship construction and off-shore structures. Its broad objective is to help the technical industrial community to be prepared to deal with Arctic energy exploitation opportunities in the future.

Encouraged by the Ministry of Research, this group has prospected the industrial necessities and nineteen different research programs were outlined. This has led so far to the formation of one Arctic Style Engineering Group which has begun a certain number of activities in ice mechanics. It is expected that other research groups will be constituted to study problems such as freezing rocks and soil behaviour, influence of salinity and behaviour of materials at very low temperatures.

The present group has not had the best conditions to found the French Permafrost Association but it is planned that the Association should be functional very soon. Presently, the draft of the future French Permafrost Association Constitution has been submitted to a certain number of founder members, then the administrative steps necessary for the official creation will be engaged.

We remark that one of the future aims of the Association will be to invite other already existing committees, having a very broad field of interest, to join the particular permafrost actions in connection with the International Permafrost Association. We have in mind:

The French Periglacial Commission which depends upon the French Committee of Geography
The French INQUA Committee
The French Quaternary Association

In conclusion, we are doing the best so that the French Permafrost Association will be fully established by the spring of 1988 and to belong to the International Permafrost Association at the date of the Trondheim International Conference.

Report by J. Aguirre-Puente and A.M. Cames-Pintaux.

GERMANY

The Adhering National Body of Germany (FRG) is the National Committee for Permafrost which was established in 1984. The chairman is Professor Jessberger, Department of Civil Engineering, University of Bochum, with Professor Liedtke (vice-chairman), Department of Geography, University of Bochum, Dr. Burchkhardt, Geological Survey of Northrhine-Westphalia and Professor Thyssen, Department of Geophysics, University of Münster, being the other members of the National Committee. At present, the National Committee is under the auspices of and supported by the Deutsche Forschungsge-meinschaft (DFG), the central non-governmental institution for the promotion of sciences in West Germany. About 200 scientists have declared an interest in various aspects of permafrost or permafrost related research, half of which are earth scientists and the remainder engineering scientists. Recently, industry (e.g. steel industry) has indicated support of the National Committee's interests. The Committee may be enlarged by representatives for bio-sciences and planetology, if necessary. The aim of the National Committee is to represent German permafrost research within IPA and to support and coordinate permafrost research in Germany. Matters of the National Committee have been discussed on several occasions, e.g. on Meetings of the German Society for Polar Research, the German Association for Quaternary Research, the National Committee of SCAR and the DFG-Senate's Commission for Geosciences. Discussions are still going on as to whether the National Committee should actively affiliate with or become a body of one of the existing scientific societies.

Although present permafrost does not occur in Germany there is a long tradition of permafrost related rsearch within geomorphology, Quaternary geology, polar research and within the field of artificial ground freezing. Most of the regional Quaternary geomorphology of Germany touches problems of the reconstruction of former permafrost conditions. Studies on the geomorphology of present permafrost are carried out in the Antarctic, Iceland, Greenland and various high alpine environments (Alps, Scandinavia, Andes, Himalayas, Tibet). Within geophysics the main interest is in the effects of permafrost on seismic studies. Within civil engineering in Germany a large number of studies are devoted to thermal engineering design, frost heave and ice segregation, mechanics of frozen soil as well as to excavations, mining and municipal facilities.

Report by J. Karte.

ITALY

The Italian I.P.A. Adhering Body has begun a systematic research on rock glaciers in the Italian Alps. This project, in which more than 20 researchers from different Universities are involved, is financially supported by the National Research Council of Italy. It has the aim of producing in some years a medium-scale map of the alpine rock glaciers which will be distinguished according to their typology and state of activity.

More detailed studies, such as large scale geomorphological mapping, sedimentological analyses, geophysical soundings, lichenometry and so on,

will be carried out on well developed and particularly representative forms.

Other researches were also started to analyse different high mountain cryogenic forms and deposits, both in the Alps and in the Apennine.

Report by F. Dramis.

U.S.A.

Within the U.S. National Research Council there are two committees responsible for permafrost activities; the U.S. Committee for the International Permafrost Association (USC/IPA) of the Board on Earth Sciences (BES) and the Permafrost Committee coordinates activities within the United States.

On behalf of the IPA, the USC/IPA is coordinating the preparation of the second 5-year Bibliography on Permafrost for the Period 1983-1987. A special Workshop on Permafrost Data and Information is being organized by the World Data Centre A (Boulder, Colorado), which will be held in Trondheim immediately before the August 2-5, 1988, Fifth International Conference on Permafrost (VICOP).

Numerous permafrost and related projects are conducted by government agencies, universities, and industry. The results will be reported in the approximately 75 U.S. papers presented at VICOP. Briefly, permafrost-climate investigations are conducted by the U.S. Geological Survey in deep bore hole measurements of temperature in Northern Alaska and by the University of Alaska in shallow bore holes.

Subsea permafrost and coastal investigations continue in northern Alaska. Industry is undertaking site investigations in northwestern Alaska in preparation for a major mining project.

A joint-ground temperature measurement program with the Chinese Ministry of Railways was begun on the Tibet Plateau and in Fairbanks, Alaska. Temperature cables from each country were installed at each of the two sites and weekly measurements to 50 feet are being obtained for comparisons in methods.

Professional organizatins have several major activities underway. The Technical Council of the Cold Regions Engineering of the American Society of Civil Engineers is publishing a new journal Cold Regions Engineering and is planning an international conference on Cold Regions Transportation for 1989, in Minneapolis, Minnesota.

The American Society of Testing and Materials has formed a new Subcommittee (D 18-19), Frozen Soil and Rock to develop standards on pile load testing frost susceptibility and creep testing. C.W. Lovell is the Chairman.

The American Society of Mechanical Engineers co-sponsored The First International Heat Transfer Symposium in Cold Climates, Edmonton, Canada, June 1987 and co-hosted the VII Offshore Mechanics and Arctic Engineering

Conference, Houston, Texas, February, 1988.

Report by J. Brown.

U.S.S.R.

Report by President Melnikov to Council on 5 August, 1987, Ottawa, Canada.

I shall try to inform you shortly about some directions in studying the permafrost problems in the U.S.S.R.

Much attention is paid now to agriculture in the North, especially to the development and fertility of poor soils. The amelioration in permafrost areas needs special irrigation methods. It is necessary to determine the amount of water because of the instability of the permafrost table. Too much water causes negative results. Correct irrigation, for example, in Yakutia, promotes rich productivity of meadows, a big harvest of vegetables and root crops. It is of great importance for the supply of local food for the natives.

Environmental protection in permafrost areas and in areas of deep seasonal freezing is a significant problem too. Many agencies that have carried out investigations in the developing area of the North pay attention to the protection measures which provide correct land use management.

The geological surveys and site investigations for the construction of plants, cities, mines, railways and pipelines of long extent destroy landscapes in permafrost areas and threaten the stability of constructions. The scientific programs include special mapping of the developing sites showing dynamic trends of cryogenic geomorphological processes such as thermokarst, frost heaving, frost cracking, solifluction, etc., and predicting changes in permafrost layers connected with heat exchange on the earth surface caused by development. The revegetation and reconstruction of the disturbed areas and landscapes, environmental monitoring both on and under the earth surface, especially of the pollution of ground water, also are present in programs.

Effective environmental protection measures, based on results of investigations, provide correct management of the industry and agriculture in the far North, Siberia and Far East.

The problem of water diversion from the North to the South has been discussed for many years in the U.S.S.R. There have been plans to divert part of the runoff of some northern rivers and to direct the flow to the territories of the south middle Asia republics (Turkistan) to ameliorate the poor water resources of the country. Many research institutes cooperated to investigate and solve the problem. Its complexity provoked discussions and the situation became critical. The experienced scientists of the Academy of Sciences objected against the project because a withdrawal of large amounts of water from the northern rivers could cause ecological changes in the coastal region of the Polar ocean and the northern rivers themselves. The conclusion of the scientists about a lack of adequate knowledge on the ecology of the North

forced the government to decide to stop the work connected with the project of water diversion from north to the south.

Engineering geocryology is a large part of our investigations. Much attention is paid to the construction of gas and oil pipelines, railways, highways and to the conditions of their operation. It is worthwhile mentioning the monitoring of ground temperature regimes in permafrost especially in sites of complicated conditions. We have got very interesting data on the behavior of the Vilui hydropower station in Yakutia for a period of 15 years.

The distribution of ground water in permafrost and the peculiarities of its utilization in different conditions are studied too.

A map of hydro-geocryological regions (a scale 1:5 000 000) of East Siberia for an area of about 8 million square kilometers has been worked out and printed by the Permafrost Institute. It is well known that some large cities have been erected in the North of the U.S.S.R., such as Norilsk, Magadan, Yakutsk, Mirny, and Nerjungri. But the water supply and sewage of these cities are in an unsatisfactory condition and partly absent. The technology and esthetics of those constructions are to be improved.

New geocryological research departments were created by the Permafrost Institute in the cities of Chita and Norilsk to intensify the investigations.

A new laboratory should be built in the Magadan region.

Special research work, corresponding to the peculiar geocryological conditions of the areas are being carried out at the Vilui, Igarka and Alma Ata high mountain stations.

Finally, I would like to propose the following problems for common international research work.

1. Methods and technology of development of areas with large masses of underground ice.

2. The formation and propagation of man-induced salinity of the soil and methods of preventing the ground from becoming saline.

3. Storage of radioactive wastes in permafrost.

4. Methods and technology for exploiting gas hydrate beds.

5. Permafrost as a depository of information on past climatic fluctuations during hundreds and thousands of years (monitoring of permafrost). Some scientists say that permafrost has existed on the earth for hundreds of thousands to about one million years. The problem must be investigated.

To finish my review, I would like to inform you that the Scientific Council is planning to issue a special journal Geocryology to be published four times a year with each volume comprising 240 typewritten pages.

We have to determine the circulation of the journal so it is desirable to know how many members of the International Permafrost Association would wish to subscribe to the journal. Let us know, please. The cost will be eight roubles yearly. It will be printed in Russian with an English resume.

Thank you.

U.S.S.R.

The annual meeting of the Scientific Council of Earth Cryology of the Academy of Sciences of the U.S.S.R. was held in March 1986 in Moscow. A short information item was inserted in a previous newsletter.

A special meeting devoted to the problem "Hydropower station construction in the Far North," sponsored by the Council, was held in the city of Krasnoyarsk (Siberia) in April 1986.

The problem of natural and economic aspects of research and development of the Polar region of the U.S.S.R. was discussed at a coordinating meeting in the city of Tixi (Yakutia) under two Scientific Councils of the Academy of Sciences of the U.S.S.R: Earth cryology and Biosphere problems.

The Council and the Permafrost Institute have prepared a book of Soviet papers (in Russian) for the V International Permafrost Conference (Norway 1988) in addition to the papers to be published in the Proceedings of the Conference. The book includes some results of research in the field of general and engineering geocryology in the U.S.S.R. (1983-1986). The Permafrost Institute has begun to prepare also the Soviet bibliography on geocryology 1982-1986.

The President of the IPA Academician P.I. Melnikov and a member of the IPA Council Dr. N.A. Grave, with the help of IPA, visited the U.S.A. in the fall of 1986. In Dartmouth College (Hanover, N.H.) they visited some laboratories and had meetings with scientists and specialists of the College and U.S. Army CRREL. In Washington, D.C., Dr. Jerry Brown arranged many meetings (National Academy of Sciences, National Rsearch Council, Library of Congress, the Geological Survey, Environmental Protection Agency, Smithsonian Institute, Rutgers University).

In the National Science Foundation, Division of Polar Programs, Soviet Scientists were informed in detail of the Arctic research program and received an invitation to take part in common research work. In New York meetings were arranged with ASCE and ASME.

Two books were edited in the "Nauka", Moscow, by the Science Council in 1986:

1. "Problemy ingenernogo merslotovedenia v gidrotechnicheskom stroitelstve", red. J.F. Bijanov (Problems of engineering geocryology in hydropower construction, 1986, ed. G.F. Bijanov)

2. "Formirovanie merzlich porod i prognoz kriogennich processov", red. T.N. Kaplina (A forming of frozen rocks and a prediction of the cryogenic

processes. 1986, ed. T.N. Kaplina).

Report by N.A. Grave

July 29, 1986.

U.S.S.R. NATIONAL COMMITTEE, I.P.A.

MEMBERSHIP LIST, JUNE 7, 1987

MEMBERS OF THE PRESIDIUM OF THE COMMITTEE (confirmed by the Academy of Sciences U.S.S.R.):

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2.	Deputy Chairman	SHVETSOV, P.F., Corresponding member of the AS U.S.S.R
3.	Deputy Chairman	VOITKOVSKII, K.F. Doctor of Technical Sciences. Moscow State University im. M.V. Lomonosova
4.	Deputy Chairman	MEL'NIKOV. V.P., Doctor of Geol.-Mineral. Sciences. Institute for Problems of Economic Development of the North
5.	Scientific Secretary	GRAVE, N.A., Doctor of Geogr. Sciences. Institute for Permafrost Studies
6.		AVSIUK, G.A., Academician
7.		BAGAEV, IU.M., Candidate of Technical Sciences. The Applied Problems Section at the Presidium of Academy of Science U.S.S.R.
8.		IVANTSOV, P.M., Doctor of Technical Sciences. Ministry of Construction of Petroleum Industry Enterprises, U.S.S.R.
9.		KIRILLOV, IU.I., Ministry of Power Engineering and Electrification
10.		KOTLIAKOV, V.M., Corresponding member of the Acad. of Sci. U.S.S.R.
11.		KUKHOREV. V.N., Ministry of Construction in Eastern Regions of the U.S.S.R.
12.		CHERNOMYRDIN, V.S., Ministry of Gas Industry, U.S.S.R.

MEMBERS OF THE NATIONAL COUNCIL

13. BALOBAEV. V.T.	Candidate of Technical Sciences. Institute for Permafrost Studies, Siberian Branch of the AS U.S.S.R.
14. BAULIN, V.V.	Doctor of Geol.-Mineral. Sciences. Industrial and Scientific Research Institute of Engineering Exploration in Construction, GOSSTROI, SSSR
15. VOLGINA, V.A.	Candidate of Chemical Sciences. Institute of Mineral Studies of the Acad. of Sci., U.S.S.R.
16. VTIURIN, B.I.	Doctor of Geogr. Sciences. Institute of Geography of the Acad. of Sci. U.S.S.R.
17. VIALOV. S.S.	Doctor of Technical Sciences. Moscow, Institute for Structural Engineering im. V.V. Kuybysheva, Ministry of Higher and Secondary Specialized Education of the U.S.S.R.

18. GORBUNOV, A.P.	Doctor of Geogr. Sciences. Institute for Permafrost Studies, Siberian Branch of the Acad. of Sciences U.S.S.R.
19. GRECHISHCHEV, S.E.	Doctor of Geol.-Mineral. Sciences, All-Union Scientific-Research Institute of Hydrogeology and Engineering Geology of the Ministry of Geology, U.S.S.R.
20. DUBIKOV, G.I.	Doctor of Geol.-Mineral. Sciences. Industrial and Scientific Research Institute on Engineering Exploration in Construction, GOSSTROI, U.S.S.R.
21. ERSHOV, E.D.	Doctor of Geol.-Mineral. Sciences. Moscow State University im. M.V. Lomonosova.
22. INDOLEVA, N.N.	Scientific Council of the U.S.S.R. on Geocryology.
23. KAMENSKII, R.M.	Candidate of Technical Sciences. Institute of Permafrost Studies, Siberian Brance of the Academy of Science U.S.S.R.
24. KONISHCHEV, V.N.	Doctor of Geographic Sciences. Moscow State University im. M.V. Lomonosova.
25. KUDOIAROV, L.I.	Doctor of Technical Sciences. Moscow Institute of Structural Engineering, Im. V.V. Kuibysheva. Ministry of Higher and Secondary Specialized Education of the U.S.S.R.
26. NEKRASOV, I.A.	Doctor of Geogr. Studies. Institute of problems of Economic Development of the North, Siberian Branch, Acad. of Sci. U.S.S.R.
27. PAVLOV, A.V.	Doctor of Geogr. Sciences, All-Union Sci.-Research. Institute of Geography and Engineering Geology, Ministry of Geology, U.S.S.R.
28. PERETRUKHIN, N.A.	Doctor of Technical Sciences, All-Union Sci.-Research Institute of Transportation Construction of the Transportation Ministry, U.S.S.R.
29. PERL'SHTEIN, G.Z.	Doctor of Geol-Mineral. Sciences, All-Union Sci.-Research Institute of Gold and Rare Metals of the Ministry of Non-Ferrous Metallurgy, of the U.S.S.R.
30. POPOV, A.I.	Doctor of Geographic Sciences. Moscow State University im. M.V. Lomonosova.
31. ROMANOVSKII, N.N.	Doctor of Geol.-Mineral Sciences. Moscow State University im. M.V. Lomonosova
32. SADOVSKII, A.V.	Candidate of Technical Sciences. Scientific-Research Institute of Soil Mechanics and Foundation Engineering, GOSSTROI, U.S.S.R.
33. SNEGIREV, A.M.	Candidate of Technical Sciences. Institute for Permafrost Studies, Siberian Branch of the Academy of Science U.S.S.R.
34. SHUMILOV, IU.V.	Doctor of Geol.-Mineral. Sciences. Institute of Permafrost Studies, Siberian Branch of the Academy of Science U.S.S.R.

(Translated from the membership list, courtesy of J. Brown, U.S.A.)