

FOG Newsletter

May 1999 / Issue 1

A newsletter for those working on fog and dew related projects

We are very happy to bring you this first issue of the *Fog Newsletter*.

It is hoped that you will find it informative and that you will contribute to it and help shape future issues. The idea of a periodic publication for those working in fog and dew research, as well as those involved in fog collection projects, arose out of the recommendations at the end of the First International Conference on Fog and Fog Collection. It has taken a while to find the necessary sponsorship, and the time, to begin the Newsletter. Through the kind assistance of the International Development Research Centre (IDRC) and the Canadian International Development Agency (CIDA), both headquartered in Ottawa, and the Atmospheric Environment Service of Environment Canada in Toronto, we now have sufficient resources to begin publication. The aim is to produce and distribute three issues each year.

The *Fog Newsletter* will serve as a method of maintaining links within the community, during the period between Fog Conferences, but the subject matter is by no means limited to conference related activities. Fog plays an integral role in many diverse ecosystems. We welcome being contacted by those active in fog research, whether it concerns coastal forests in temperate latitudes, tropical mountain fog forests, acidic fog, remote sensing, instrumentation, etc., and we will add you to our mailing list. A very special part of the fog activities in the world today is focused on fog collection to provide water for managed use. This application depends

upon finding locations in the developing world where there are high horizontal fluxes of fog water in regions with an acute water need. It can only become an effective water tool through links to the scientific community and through improvements in fog climatology, fog forecasting, fog instrumentation and the remote sensing of fog. Fog and dew are meteorological phenomena caused by similar conditions and they often appear in the same geographical settings. This results in a requirement for instrumentation and techniques designed to distinguish between the water deposited by the two mechanisms. We hope that those involved in dew research will participate in the *Fog Newsletter* and let us know of their projects, publications, and instrumentation advances.



A portion of the array of large fog collectors at El Tofo, Chile. The distance between posts is 12 meters.

News items and items on the lighter side are welcome. We plan to include at least two pictures in each issue. If you have a photo that you feel shows your work or group in an interesting or spectacular way, please send it to us as a print, slide, or digital file.

Five hundred copies of the first issue were printed. This keeps the total costs down but the price per copy is high. We will periodically look at ways of ensuring that the Newsletter is getting to those active in the fields covered. Professors are encouraged to circulate a copy to their students, rather than each one receiving an issue and institutions are asked to circulate copies where it is feasible. The size of the



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Contributions of short articles, news items and photographs for upcoming issues of the Newsletter are welcome. They should be sent to:

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Copies of the Newsletter are available to individuals or groups working in fog studies (physics, chemistry, meteorology, instrumentation, forecasting, hazards, satellite observations, etc.), studies of fog deposition to tropical and temperate forests, studies of dew, and applications of fog collection for use in both developing countries and in commercial concerns. A voluntary contribution of \$10 US per subscription would be appreciated to cover printing and mailing costs. The Newsletter will appear three times a year.

where it is feasible. The size of the circulation is something that will require constant consideration. Letters or other contributions should be short and may be edited to fit the space available. If you are in an agency and looking for project proposals, we would like to hear from you.

The first issue of the *Fog Newsletter* shows you what, with your help, is possible. We may include an electronic version of it on the web site for the Second Fog Conference but, since many of the recipients do not have access to the Internet, a printed copy will be the primary means of exchanging ideas and information.

HOW TO RECEIVE THE NEWSLETTER

The Newsletter is available to anyone working in the areas noted above. Your name, title, and complete mailing address should be sent to us along with a brief statement about the area you are working in or interested in. There is no charge for the Newsletter. We realize that some people do not have the resources to pay for a publication nor the means to transfer funds; therefore, after considerable thought, we decided to make the Newsletter free and seek sponsors to assist with the costs.

We have also decided to ask for a voluntary contribution of \$10 US per year from those individuals who have the means and desire to support the Newsletter. Those in Canada or the US can send a cheque payable to the Fog Conference. People in other countries should not send cheques or bank transfers as the fees to cash them are too high. We can accept payment by MasterCard, if you provide us with your card number and the expiry date. We will use these funds to help cover the costs and to increase the circulation. We would like to emphasize that any funds you contribute are on a voluntary basis and that your receipt of the Newsletter is not dependent on a contribution.

THE DEFINITION OF FOG

I thought that I would briefly discuss the definition of fog. It may help in sorting out what areas will be covered in the Newsletter. Problems of terminology rarely arise when we speak of low elevation fog but they do in mountain projects.

Fog has a very clear definition and it is fog that we work in when we are on mountains. Sometimes, however, the work is termed an in-cloud study, which gets the concept across but is not precisely correct. The fog may be formed in part, or completely, from clouds that advect over the mountains. Think of a sign on the highway, it will say "Danger Frequent Fog." Airports are closed by fog not cloud. To use the word cloud in the context of measurements or instrumentation can be misleading. I bring this up as there may be places where we can initiate a clarification. For example, somewhere along the way the concept of cloud forests got ingrained into the literature when they are in fact fog forests. A cloud has a base that is above the terrain; therefore, it can never interact with the surface. Aircraft, balloons, etc. are used to study clouds. In mountainous areas, when there is a layer of cloud, it can be confusing; however, the points of interaction with the surface are in fog. That is the proper meteorological definition. Think of it this way. There is an airport with the base of a layer of stratus 200 m above the runway. The airport will report a ceiling of 200 m. If at night the cloud lowers and the base reaches the ground, then the airport will report fog. It is foggy and the situation is exactly the same as when a cloud is pushed by the wind against the mountain. Whether the cloud moves down or sideways to meet the ground is irrelevant. There is a change of terminology when the cloud touches

the ground. In meteorological definitions of fog, it is further stated that it is composed of tiny water droplets and that it is present when the visibility is below 1 km.

NEW PUBLICATIONS

We plan on having a section in each newsletter where new publications are listed. The success of this depends on you advising us when your articles appear. In recognition of the fact that there is limited space available, and potentially many articles, we will only list those in recognized scientific journals or books. Articles must have a publication date of 1999 or later. Only complete references with page numbers will be included. The focus of the paper should be on some aspect of fog research, fog collection, or other fog or dew related issues.

Several modeling papers have been published recently.

von Glasow, R. and A. Bott: Interaction of radiation fog with tall vegetation. *Atmospheric Environment* (1999), **33**, 1333-1346.

Walmsley, J.L., W.R. Burrows and R.S. Schemenauer: The use of routine observations to calculate liquid water content in summertime high-elevation fog. *J. Applied Meteorology* (1999), **33**, 369-384.

A debate on the comparison of results obtained from a number of microphysical probes, often used at mountain sites, continues in the literature.

Gerber, H.: Comments on "A comparison of optical measurements of liquid water content and drop size distribution in adiabatic regions of Florida cumuli". *Atmospheric Research* (1999), **50**, 3-19.

Lawson, R.P. and A.M. Blyth: Reply to Comments on "A comparison of optical measurements of liquid water content and drop size distribution in adiabatic regions of Florida cumuli". Atmospheric Research (1999), 50, 77-80.



The mountain research site at Mt. Brocken, Germany, operated by the air chemistry group of the Brandenburg Technical University Cottbus.

There are also some recent papers on fog deposition.

Heath, J.A. and B.J. Huebert: Cloudwater deposition it's a source of fixed nitrogen in a Hawaiian montane forest. Biogeochemistry, (1999), 44, Iss 2, 119-134.

Singer, A., W.F.A. Kirsten and C. Buhmann: A proposed fog deposition mechanism for the formation of salt efflorescences in the Mpumalanga highveld, Republic of South Africa. Water Air and Soil Pollution, (1999), 109, Iss 1-4, 313-325.

Blas, M., A.J. Dore and M. Sobik: Distribution of precipitation and wet deposition around an island mountain in south-west Poland. Quarterly Journal of the Royal Meteorological Society, (1999), 125, Iss 553, Part A, 253-270.

MOUNTAIN SITES

In some of the issues of the *Fog Newsletter*, we hope to summarize activities in different fields. In this issue, there is an insert listing mountain sites that are active in 1999 and which have a measurement program that includes some aspect of fog research. The table is not necessarily complete but reflects information received in response to a call for information that went out by Email. Changes and additions to this table can be sent to us and the table will be revised at some

point in the future. Other topics that could be summarized are active operational fog collection projects, low elevation or urban fog research sites, tropical montane cloud/fog forest sites, sites with dew projects, or other subjects of interest to the readers.

FOG COLLECTION PROJECTS

Jana Olivier has obtained funding from the Water Research Commission in **South Africa** for a three year fog collection project for a primary school in the Northern Province. The school is at an elevation of 1100 m and the fog collectors will provide water to replace the small bottle of water each child carries to school every day. In addition, SANPAD (South Africa - Netherlands Research Programme on Alternatives in Development) is funding a new project north of Cape Town. Pablo

Osses and Pilar Cereceda have started work on a project south of La Serena, **Chile** to provide water to the Shrine of Padre Hurtado, which is located beside the Pan American Highway. Funding is being provided by a family in Canada. The evaluation stage of the project in **Nepal** is underway with the active participation of the Canadian NGO, CECI, the Nepalese NGO, NEWAH, and a support group in Canada. Construction of the large fog collectors at the site in Baja California, **Mexico**, is well underway. Martin Mundo Molina and staff members of IMTA and Joel Hernandez Blanket of the university in Ensenada are actively involved.

NEWS

Hugo Padilla reports that funding for research projects at the National University of Mexico will be drastically reduced this year. The group in Mexico City is very active in physical and chemical studies of fog and will continue their research programs this year and strengthen their international collaboration. As part of the Intensive Monitoring Programme - ICP Forest in Slovakia, **Jozef Mind'aš** has established three monitoring plots with fog collectors for fog chemistry studies and is preparing two more. **Oliver Mudenda** of the Meteorological Department in Zambia returned from the First Fog Conference and made presentations on fog collection to twenty different schools within the province of Lusaka as well as on World Meteorological Day. His paper at the conference was adopted by the Zambia Air Force as a guide on fog occurrence. **Howard Bridgman** of the University of Newcastle in Australia will start a sabbatical in mid-year at the University of East Anglia in the U.K. **Pierre Herckes** reports that the CNRS group in Strasbourg, France will be smaller this year with the departure of **Maurice Millet** and **Henry Wortham**.

SECOND FOG CONFERENCE



Announcement

The Second International Conference on Fog and Fog Collection will be held 15 - 20 July 2001 in St.

John's, Newfoundland, Canada (about 8,000 km east of the First Fog Conference in Vancouver!). The explorer John Cabot sailed into the harbour of St. John's in 1497 and fishing fleets from many European countries made it their base from that time onwards. St. John's is the oldest city in North America and from the windows of the Hotel Newfoundland you will be able to see the easternmost point in North America. This small city of 175,000, has a unique atmosphere and an Irish/British heritage that is reflected in the accents of the people, their food, and their enjoyment of the outdoors. An attractive room rate has been negotiated with the Hotel Newfoundland. We will be providing more conference details in following mailings as well as on the web site.

Scientific Committee

The Scientific Committee is presently being formed. We expect that we will be able to announce the members on the web site in the near future. We are very pleased that Professor Hans Puxbaum has agreed to chair the Scientific Committee. He can be reached at:

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Working Groups

One of the recommendations coming out of the First Conference was to form working groups on specific issues. This process has started and we welcome your participation. Presently, there are five active groups. The leaders of the Working Groups should be contacted directly for information. We expect that, as more interest is shown, additional Working Groups will be formed during the next year.

1. **Dew:** *Simon Bercowicz, Arid Ecosystems Research Centre, Hebrew University of Jerusalem*
berkowi@vms.huji.ac.il
2. **Remote Sensing of Fog:** *Jörg Bendix, Institute of Geography, University of Munich*
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3. **Mountain Sites:** *Michael Kalina, Institute for Analytical Chemistry, Vienna University of Technology, Austria*
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4. **Latin America:** *Fernando Garcia-Garcia, Director, Atmospheric Sciences Center, National Autonomous University of Mexico*
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5. **Fog Climatology:** *Howard Bridgman, Geography Department, University of Newcastle, Australia*
gghab@cc.newcastle.edu.au

Fog Related Web Sites

The First Fog Conference web site address has changed somewhat from the original. We will keep the First Conference web site active for some time as the program and other items are still of interest. However, we expect that once we have some time, all of the new information will appear on the Second Fog Conference site. Your suggestions for changes and contributions of material are welcome.

The Second Fog Conference is at:
<http://www.tor.ec.gc.ca/armf/fog/icffc2.html>

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<http://www.tor.ec.gc.ca/armf/fog/icffc.html>

If you send us information on other web sites that have information on fog projects, we will list them in a future issue.

1998 PROCEEDINGS

Three hundred copies were printed of the Proceedings Volume for the 1998 Fog Conference in Vancouver. As well as distributing copies to the delegates, a number were given to the sponsors of the conference. We have been selling the remaining copies to individuals, institutions, and libraries around the world. This provides a small amount of funding for current conference activities. Presently, about 35 copies remain. If your institutional library would like to purchase a copy, please have them contact the conference.

Authors of papers will be pleased to know that the Proceedings Volume is accessible to libraries through listings of ISBN numbers and Cataloguing in Publication data. The papers will also be abstracted in *Meteorological and Geoastrophysical Abstracts*.

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