



Editor
Dr. Robert Schemenauer

Contributions of short articles, news items and photographs for upcoming issues of the Newsletter are welcome. They should be sent to: FogQuest@rogers.com or to the address at the end of this Newsletter.

The Newsletter's primary purpose is to be a means of exchanging information with our members. We hope that it will also promote better communications between those working on water projects using fog, rainfall and dew collection, and those studying the many scientific aspects related to these atmospheric water sources. The Newsletter is sent three times a year to members of FogQuest: sustainable water solutions. The current issue is available on the web site www.FogQuest.org. Information on membership can also be obtained on the web site.

FogQuest continues to move forward and evolve. Since the time of the last Newsletter, we have been preparing proposals for new projects and forging linkages with new partners. The project in Guatemala has been delayed as the working arrangements with groups in the country are redefined. AMSCLAE, the Guatemalan authority in charge of the management of the Lake Atitlán watershed, will now take a more active role and work will likely start in the spring of 2003 and extend for a full year. In late December and early January, FogQuest began work on a water project in Yemen. This project is highlighted below. Other initiatives will be announced as they come to fruition. They will focus primarily on our priority geographical areas in South America and the Caribbean.



A large fog collector at Mabijan, Yemen. The trough had not yet been installed at the time of the photo.

Pablo Osses

FogQuest receives requests from many media outlets for information on both new and existing water projects. We do our best to accommodate them and to arrange for site visits where practical. If you should see a television program, or an article in a newspaper or magazine, that highlights our fog collection projects, please let us know. We try to keep a complete record of the coverage in our archives.

We begin a new year with this issue of the Newsletter. It will be the second full year of operation for FogQuest. We have made a lot of progress in establishing ourselves as a productive and active organization but we also have many challenges ahead. On March 21st we will organize an event in Toronto to publicize World Water Day. It will also be the first formal

fund raising event for FogQuest. We value the enthusiastic cooperation of our members and look forward to hearing from you in the months ahead.

FOG COLLECTION IN YEMEN

In late 2002, FogQuest was approached by the American NGO, International Community Services, to join with them in a major field study to evaluate the fog collection potential near Hajja, Yemen. This is a mountainous area

to the north of the capital city, Sana'a. A project was put in place with the support of the Social Development Fund in Yemen. Pablo Osses went from Chile, for FogQuest, to assist in the construction, siting and installation of 26 small fog collectors (SFCs) and two large fog collectors, in and near communities in the Hajja area.

Matthias Leibbrand of ICS will coordinate the field measurements and FogQuest will assist with the analysis of the data. This part of Yemen receives periodic rain events during parts of the year but is generally extremely arid. During the winter, December through March, there is frequent fog but no rain. It is this period where fog collection may be able to make a major difference in the water supplies of the people. Initially, the traditional cisterns carved out of the bedrock will be used to store the water. Please watch the web site for more information.



Children at Schiraqi, Yemen.

Matthias Leibbrand

MEET THE STAFF

Pablo Osses
Field Operations Manager



Pablo has been with FogQuest since its beginning. He obtained his degree in geography from the Pontifical Catholic University of Chile, where he studied with Professor Pilar Cereceda. During these years he had the opportunity to visit many fog collection sites in Chile and elsewhere. After graduation, he teamed with several partners to form Latitud 90, one of the best tourism and trekking companies in the country. Though still finding time to work on fog collection projects, he was looking for the chance to do more. Shortly after FogQuest became active in late 2001, Pablo left the day-to-day operations of Latitud 90 to become a professor at the Catholic University in Santiago. At this time he also took on the position of Field Operations Manager for FogQuest. He has tremendous energy and is an expert in the construction of fog collectors. The photo is of him during his visit to Yemen in January.

"For me FogQuest is a real opportunity to apply my knowledge for the benefit of people, especially in such an important topic as clean water. Fog and rain collection is a cheap, reliable and sustainable way to get more than enough water for years. There is no better reward than the smile from a boy, a girl or an old man when they can get water from the 'heavens'."



WHAT IS FogQuest?

FogQuest is an innovative, international, non-governmental, non-profit organization, which implements and promotes the environmentally appropriate, socially beneficial and economically viable use of fog, rain and dew as sustainable water resources for people in arid regions of developing countries.

MEMBERSHIP

Membership in FogQuest continues to grow. We currently have members in 18 countries on six continents. A solid network of members will be our means of spreading information on fog collection and generating support that is vital to our operations. Please encourage your friends and colleagues to join.

HOW CAN YOU HELP?

Please consider taking out a membership in FogQuest. The annual membership fee of \$35.00 Canadian, or \$25.00 US for those outside of Canada, can be paid by check or by credit card.

We accept VISA or MasterCard. Students receive a \$5.00 discount on their membership fee. Donations can be directed for general support or to our current efforts in Guatemala, Yemen, Haiti, Chile and Nepal.



Many of the villages in Yemen have difficult access and severe water shortages.

VOLUNTEERS

FogQuest needs volunteers to help with our work in the main office in Toronto, Canada. There are a number of tasks where you must be able to actually come into the office but others that can be done through Email contact. If you would like to be involved, please let us know. As we grow as an organization and are active in more and more field projects, we will also need volunteers to work in the field. Presently, Darrell Piekarcz from Canada is in Guatemala assisting with the implementation of the initial fog collection work there.



Pablo Osses

Ridges like this at Haddad, Yemen, are potentially good fog collection sites.

FOG COLLECTION PROJECT AT SERRA MALAGUETA (SANTIAGO ISLAND, REPUBLIC OF CAPE VERDE)

Submitted by: António Advino Sabino

Based on the applied research conducted on the mountainous area exposed to the trade winds, between 500 m and 1000 m elevation, a Fog Collection Project was implemented at Serra Malagueta (750 m). The intention is to supply fresh water for the communities in the mountains where fog water collection is the unique source of fresh water. Presently, the drinking water is transported for a long distance by truck. The Municipalities of Tarrafal and Santa Catarina funded this project and the project is designated "Project Inter-municipal of Serra Malagueta". FogQuest arranged for the mesh to be shipped to Cape Verde.

The project was inaugurated by Dr^a Madalena Neves, Ministry of Agriculture, Food and Environment, on 16 October 2002, to commemorate the World Day of Food having as a theme, "Water: Source of Food Safety". Four 6 m x 3 m fog collectors were installed aiming to collect about 1000 L per day. But this is just the start of the project. The main goal is to collect, over the long term, about 3,500 m³ of water over an area of 300 hectares. The collected water can be used



The four fog collectors. We can see the Mayor of Tarrafal, Mr. Domingos, in the front.

for fresh water and small scale irrigation. We are very happy with the involvement of the Government, through the Ministry of Agriculture, Environment and Food, in the fog collection projects in the Cape Verde islands. At the present time, the situation concerning fog project activities is not well known. Now, with the political will and the awareness of communities of the importance of fog collection to supply water for domestic use, it makes the outlook more optimistic. In addition, the European Community Representative and other international institutions invited for the inauguration showed themselves to be motivated and interested in this kind of project.



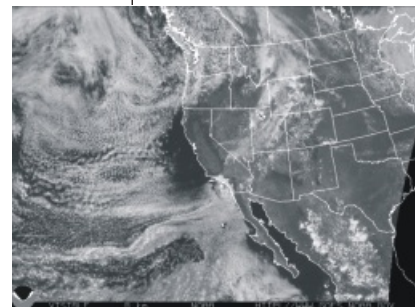
Mrs. Madalena Neves, Ministry of Agriculture, Food and Environment making a commemorative speech on the Serra Malagueta Fog Collection Project.

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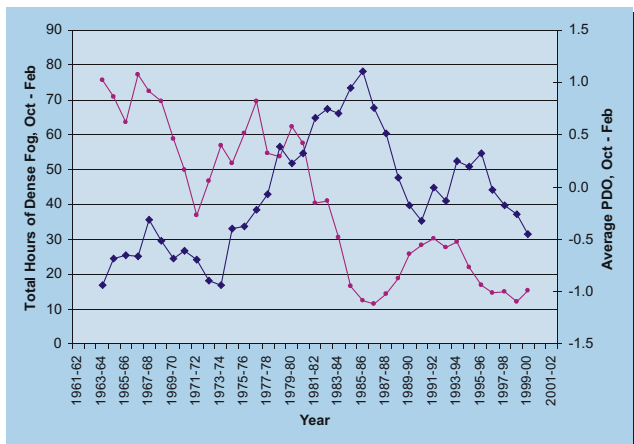
FOG IN LOS ANGELES

Submitted by: Michael Witiw and Jeff Baars

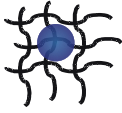
Despite its reputation for sunny skies, Southern California experiences a substantial amount of fog in the course of a year. Using data from Los Angeles International Airport (LAX) from 1961 through 2002, we examined both the type of fog and the prevalence of fog. Two main types of fog account for at least 95% of all fog occurrences at LAX. Advection fog forms over the Pacific Ocean and then moves in as a stratus deck that gradually lowers. Advection radiation fog occurs when marine air from the Pacific Ocean moves inland and then cools at night, resulting in a radiation fog event. This latter type of fog is primarily restricted to the cooler months. We then related the occurrence of dense fog (defined as visibility < 400 m) to atmosphere ocean cycles, including the Pacific Decadal Oscillation (PDO), the Southern Oscillation Index (SOI) and Nino 3.4 . We found a strong correlation of dense fog occurrence with the cold (negative) phase of the PDO. However, there was no evidence for the PDO's influence on the type of fog that occurred. Looking at the five months when dense fog is most common (October through February), there was an average of 8.5 hours per month of dense fog. However, during the 94 months the PDO was in the positive phase, this value was 5.1 hours, and for the 116 months the PDO was in the negative phase, the average was 11.3 hours of dense fog per month.



A visible GOES image showing advection fog penetrating into the Los Angeles basin.



Number of hours visibility < 400 meters (red) and PDO (blue) for the periods Oct. to Feb. (5 year means) Source: National Climatic Data Center and <http://jisao.washington.edu/pdo/PDO.latest>



3rd INTERNATIONAL CONFERENCE ON FOG AND FOG COLLECTION CAPE TOWN, SOUTH AFRICA 2004

The next Fog Conference is going to be held in late 2004 in Cape Town, South Africa. The exact dates and venue are presently being determined. It will be organized by Professors Hannes Rautenbach and Jana Olivier of the University of Pretoria. For more information, please contact Professor Rautenbach at hannes.rautenbach@up.ac.za.

NOTE: You can still purchase copies of the Proceedings Volume of the 2001 Fog Conference through FogQuest. It is an important addition to a personal or institutional library.



Boys beside a standard fog collector at Aschmur, Yemen.

Matthias Leibbrand

NEWS

A number of our members, such as **Bruce Whiffen** in [Canada](#) and **Arkadi Koldaev** in [Russia](#), are actively working on forecast and safety issues related to fog on highways. Fog continues to be a factor in major highway accidents and in aviation disasters such as the crash of a Turkish jet with 75 people on board on 8 January 2003. **Robert Pugh** of Oxford University in the [United Kingdom](#) has finished an undergraduate thesis on the meteorological conditions at the fog collection site at Iquique, Chile. **Bob Schemenauer** will be giving an invited keynote address on fog collection at the 11th International Conference on Rainwater Catchment Systems in Mexico City, [Mexico](#), in August. **Manabu Igawa** in [Japan](#) is now working not only on fog chemistry but also forest decline caused by acid fog. **Martha Scholl** in the [United States](#) has a nice web site on her work regarding the contribution of fog drip to the ecosystem hydrology in Maui, Hawaii water.usgs.gov/nrp/proj.bib/hawaii/maui_fog.htm. **Sampurno Bruijnzeel** of the Free University in the [Netherlands](#) is working with **Werner Eugster** and **Reto Burkard** of the University of Bern in [Switzerland](#) on fog deposition studies in the



The standard fog collectors at Maswar, Yemen.

Matthias Leibbrand

fog/cloud forests of [Puerto Rico](#) and [Costa Rica](#). **Joh Henschel** with the Desert Research Institute in [Namibia](#) is continuing to experiment with new designs for a large fog collector, which would withstand very high wind speeds. **Dusty Becker** of Kansas State University reports that the fog forest at Loma Alta in [Ecuador](#) is a "Hummingbird Oasis" with over 20 species present. The community of Loma Alta has protected the 2500 acre forest for their water supply and are now inviting bird watchers and nature lovers to come visit the forest. If you wish to arrange a visit, contact Dr. Becker at dbecker@oznet.ksu.edu

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Terraced fields at Maswar, Yemen.

Matthias Leibbrand

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