

# International Data Rescue News

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## Environmental Data and Disease Prevention

According to the World Bank, 15 million people die each year from infectious disease. Recent studies suggest that data rescue may be key to reducing this number

### Latent Dangers

Many diseases seem to disappear for years or even decades, only to reemerge in sudden outbreaks. Research indicates that weather may trigger the sudden appearance of health concerns such as avian influenza, yellow fever, Rift Valley encephalitis, and Colorado tick fever.

### A Weather Connection?

Do historic weather and environmental records hold the key to preventing communicable disease outbreaks?

Weather patterns may influence disease spread in many ways. Certain conditions may increase



A mother applies mosquito repellent to her child. Photo by James Gathany, 2005. Courtesy of CDC.

the population size or range of virus-carrying insects such as mosquitoes and ticks. Precipitation and temperatures may affect which crops succeed, therefore determining the local diet.

The interaction of environmental and biological factors can be complex. Some diseases require more than one vector to complete

Continued on page 3

### In This Issue

2

The Arbovirus-  
Weather Link

3

Agricultural Applications  
Preventing Infections

4

IEDRO News

# The Arbovirus -Weather Link



## What are arboviruses?

Arboviruses are spread by arthropods such as ticks and mosquitoes. In humans, arbovirus infection can cause a wide range of symptoms -- from mild fevers and rashes to encephalitis, paralysis and internal bleeding. Some arboviruses can cause paralysis, comas or even death.

## Arbovirus examples

Arboviruses occur throughout the world. Diseases carried by arthropods include yellow fever, St. Louis encephalitis, Rift Valley fever, malaria and Colorado tick fever.

Do historical weather records hold the key to understanding insect-borne diseases?

## Patterns in historical data

Scientists have linked weather patterns with the outbreaks of several types of arboviruses. Any environmental change that affects an insect population will likely influence the rates of infection for the diseases they carry.

## Planning for outbreaks

Better access to and analysis of climatic data may help health care workers better prepare for arbovirus infections. St. Louis encephalitis outbreaks, for example, have been linked to the combination of an abnormally wet and warm winter, cold spring and dry summer.

Preserving historical environmental data may provide the key information needed to understand and predict local and global arbovirus epidemics.

## What Influences Arbovirus Spread?

The following climatic factors have been associated with outbreaks of specific arboviruses:

Precipitation  
 Temperature  
 Humidity  
 Wind  
 Pressure Oscillations  
 Brief weather abnormalities



A mother and son receive smallpox vaccinations. 1975. Courtesy of CDC and WHO.

## Disease Prevention

Continued from page 1

their lifecycle. Some virus-carrying insects are very susceptible to predators.

### Retrospective Studies for Future Planning

Comparing weather records to disease outbreak patterns may help researchers develop more accurate predictive models. For example, scientists at the Australian National University have linked Ross River virus outbreaks with either higher than average summer or winter precipitation.

### Countermeasures

Once the optimal weather conditions for the transmission of specific diseases have been identified, healthcare professionals can better prepare for possible outbreaks. Countermeasures may include warning the public about the risk and publicizing protective measures, increasing the outreach of vaccination programs, gathering workers in at-risk locations, and stockpiling antibiotics.

## Agricultural Applications

Understanding the role of weather in disease spread may also improve farming practices and food availability.

Not only can livestock be infected with arboviruses and other infectious diseases, but blights, rusts, smuts and viruses can decrease crop production.

By helping farmers predict what plants are likely to do well and which will probably fail, historical environmental data may help reduce malnutrition and hunger worldwide.

## Preventing Infection

Mosquitoes may harbor a number of arboviruses. Decrease your chances of being bitten by following these guidelines from the Directors of Health Promotion and Education (dhpe.org):

- Stay indoors from dawn to dusk, when mosquitoes are most active.
- Wear a long-sleeved shirt and long pants if you must be outside in a mosquito-populated area.
- Use insect repellent on bare skin.
- Remove containers that hold standing water.

## IEDRO News

### Just the Facts

The world community is currently involved in a heated debate about humans' role in global climate change, and the possible consequences of those changes.

One thing is clear -- the more data we have, the better we can predict and plan for our future environment.

IEDRO's mandate is to gather as much historic environmental data as possible and provide for its digitization so that researchers, educators and

operational professionals can use those data to study climate change and global warming.

Your support of IEDRO will help us gather more data for study. We believe, as do most scientists, that this will give a more accurate final result.

### Good Search

Looking for a quick, easy and free way to support IEDRO's vision to find, rescue and digitize historical environmental records and make

them available to the world community?

Set your home page to [www.goodsearch.com](http://www.goodsearch.com) and use it whenever you need to search the internet.

Choose to credit your searches to IEDRO and with each click you will be helping prevent disease and starvation, build better storm and flood warning systems, and increase the understanding of the complicated interactions between weather and biological systems.

## About IEDRO

The mission of the International Environmental Data Rescue Organization is to assist the scientific and educational communities of mainly developing countries locate, rescue and digitize all environmental data currently at risk on perishable media, and to make those digitized data freely and openly available to the world scientific and educational communities before it is too late.

**IEDRO is a registered 501(c)(3) organization.**

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