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Tapping computer power to fight malaria



Malaria parasites are carried by female Anopheles mosquitoes (CDC)

Two thousand volunteer computer users are taking part in a project in Switzerland to help researchers develop new strategies for fighting malaria in Africa.

The extra computing power is being used by the Swiss Tropical Institute (STI) in Basel to produce simulation models of the spread and effects of a disease that kills more than a million people a year.

The project is the result of a partnership – Africa@home – involving the STI, Geneva University, the European Organization for Nuclear Research (Cern) and the non-governmental organisations International Conference Volunteers and Software without Borders.

Using a computer model for malaria epidemiology developed by the STI, preliminary studies began in November last year using a cluster of 40 computers in Basel.

But as more intensive calculations have been undertaken, more computer power has been harnessed. A second phase of work launched in March this year saw 500 computers users join the network, and this number has since risen to 2,000.

Volunteer computing is based on the idea that most privately owned computers are idle most of the time, and could be otherwise used to solve scientific or engineering problems that require large amounts of computer power.

The results of MalariaControl.net will be used to determine optimal strategies for delivering mosquito nets or new vaccines which are currently under development and testing.

"There are a lot of people out there who want to contribute to science by volunteering their computers," Nicolas Maire, a researcher at the STI, told swissinfo. "We are really pleased with the response we have had."

Three-year project

Such has been the response that MalariaControl.net now has over 2,000 registered computer users – more than the three-year project needs at present.

Maire said that recent publicity attracted up to 300 people a day to register online. But he expects more computer power to be needed later this year as the project develops.

"There is a huge potential out there for making computer power available through volunteer projects such as this," he said.

"There is so much power that is not used. There are hundreds of millions of computers connected to the internet at any one time, but mostly they are involved in tasks that use only a tiny fraction of the power they can offer."

The basic model is that the volunteers download software from the web that will do the scientific calculations. Every so often the programme will ask the application to upload results and download more data to be processed.

Maire stressed that at no time did researchers have access to anyone's private data, pointing out that it was the computer itself which made contact with the server at Geneva University.

swissinfo, Adam Beaumont in Geneva

SPECIALS



The Malaria Business

Malaria kills over one million people a year, mainly in sub-Saharan Africa.

Switzerland and Tanzania are working together to try to ease the burden of the disease and bring it under control.

KEY FACTS

- 90% of malaria deaths occur in Africa.
- Malaria costs Africa more than \$12 billion (SFr15 billion) every year in lost GDP, even though it could be controlled for a fraction of that sum.
- There are at least 300 million acute cases of malaria each year globally, resulting in more than a million deaths.

RELATED SITES

- Africa@home (<http://africa-at-home.web.cern.ch/africa%2Dat%2Dhome/index.htm>)
- MalariaControl.net (<http://africa-at-home.web.cern.ch/africa%2Dat%2Dhome/malariacontrol.htm>)
- Swiss Tropical Institute (<http://www.sti.ch/home.html?&L=1>)
- Geneva University computer department (French) (<http://cui.unige.ch/DI/>)
- Cern (<http://public.web.cern.ch/public/>)
- International Conference Volunteers (<http://www.icvolunteers.org/>)
- Software without Borders (<http://www.isfswb.org/>)
- WHO - malaria (<http://www.who.int/topics/malaria/en/>)

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