

Help coordinate disaster relief with CERN's Citizen Cyberscience Center

August 8 2011

An ordinary laptop or PC is all you need to join a global project to help scientists at the Large Hadron Collider, one of the world's most ambitious science projects, understand what happened just after the Big Bang; or prepare maps to help humanitarian relief in the aftermath of a natural disaster.

Volunteers around the world now have the opportunity to get involved in the hunt for the elusive [Higgs boson](#). As part of the European Year of Volunteering, the Citizen Cyberscience Center based at CERN is launching a new version of LHC@home on 8 August 2011.

The latest version, called LHC@home 2.0, simulates collisions between two beams of protons travelling at almost the speed of light in the Large Hadron Collider (LHC). Scientists working at CERN compare these simulations, based on their own [theoretical models](#), with real data from the four LHC experiments.

The project makes use of the idle time on the volunteers' PCs, bringing them together to form a 'Volunteer Cloud' that can work as a 'virtual supercomputer'.

LHC@home 2.0 is not the only project to benefit from volunteers harnessing the collective power of their laptops and PCs. Through this virtual supercomputer, the Citizen Cyberscience Center is providing a low cost technology for researchers in developing countries to meet challenges like providing clean water and even tackling vital

humanitarian work including crisis mapping and damage assessment.

As Sergio Bertolucci, Director of Research and [Scientific Computing](#) at CERN, emphasizes: "While LHC@home is a great opportunity to encourage more public involvement in science, the biggest benefits of citizen cyberscience are for researchers in developing regions who have limited resources for computing and manpower. Online volunteers can boost available research resources enormously at very low cost. This is a trend we are committed to promote through the Citizen Cyberscience Center".

Leading international [computer manufacturers](#) such as IBM and HP have contributed their support and expertise to Citizen Cyberscience Center projects including UNOSAT. Using data from space agencies and satellite operators around the world, UNOSAT can produce maps for humanitarian applications such as damage assessment or monitoring deforestation. The project relies on 'volunteer thinking' where participants actively analyse imagery and their results are compared.

"From a development and humanitarian perspective, the potential of citizen-powered research is enormous", says Francesco Pisano, Manager of UNOSAT, " Participating in the Citizen Cyberscience Center enables us to get new insights into the cutting edge of crowdsourcing technologies. There is no doubt that volunteers are playing an increasingly central role in dealing with crisis response, thanks to the Internet."

Professor Dave Britton of the University of Glasgow is Project Leader of the GridPP project that provides Grid computing for particle physics throughout the UK. He is a member of the ATLAS collaboration, one of the experiments at the Large Hadron Collider and has previously worked on CMS, another of the LHC experiments. Commenting on the launch of LHC@home 2.0, Professor Britton said, "Scientists like me are trying

to answer fundamental questions about the structure and origin of the Universe. Through the Citizen Cyberscience Centre and its volunteers around the world, the Grid computing tools and techniques that I use everyday are available to scientists in developing countries, giving them access to the latest computing technology and the ability to solve the problems that they are facing, such as providing clean water. Whether you're interested in finding the Higgs boson, playing a part in humanitarian aid or advancing knowledge in developing countries, this is a great project to get involved with."

The Citizen Cyberscience Center is a partnership between CERN, the United Nations Institute for Training and Research (UNITAR) and the University of Geneva. STFC manages the UK subscription to CERN and, using its e-Science expertise, runs one of the 10 international Tier-1 centres taking data from the LHC and making it available to researchers around the world.

Provided by Science and Technology Facilities Council

Citation: Help coordinate disaster relief with CERN's Citizen Cyberscience Center (2011, August 8) retrieved 26 April 2024 from <https://phys.org/news/2011-08-disaster-relief-cern-citizen-cyberscience.html>

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