Technology and Art Unite to Create Dance Show Based on Volcanic Sounds of the Earth (w/Video)

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(PhysOrg.com) -- For the first time ever, a modern dance company has performed to music generated from seismic data, recorded from four volcanoes across three continents. This unique event was facilitated by DANTE, the provider of high speed research and education networks, the two distributed computing projects, Enabling Grids for E-sciencE (EGEE) and E-science grid facility for Europe and Latin America (EELA), as well as CityDance Ensemble, a prestigious company based in Washington, DC.

The dance, titled The Mountain, was part of CityDance Ensemble's Carbon, a work-in-progress about climate change. Originally presented in sold-out performances on the 14th and 15th of March at the Music Centre, Maryland, USA, it is now available to view at www.dante.net/volcanodance . Following its initial success, further performances of Carbon will be staged on the 28th and 29th of March.

The Mountain's choreography is based on the structure of melodies created out of seismic waves recorded from Mount Etna in Italy, Mount Tungurahua in Ecuador, and the Mountains Pinatubo and Mayon in the Philippines. The data was then transformed into audible sound waves using a volcano sonification technique developed by DANTE engineer Domenico Vicinanza, who also composed the music used in the dance performance. The technique is currently being used in research to translate the patterns in a volcano's behaviour into sound waves to help

predict volcanic eruptions.

Research and education data communications networks, GÉANT2 in Europe and TEIN3 in Asia-Pacific, both operated by DANTE, as well as Latin America's RedCLARA operated by CLARA, underpin the immense computing power provided by EGEE in Europe and EELA in Latin America. The complex sonification algorithms harness the power of the grids, enabling the seismic data to be converted into sound melodies, a process that would be impossible using standard bandwidth networks or computing resources.

"High bandwidth research and education internet networks together with grid computing power have played a vital part in making this project a reality," said Paul Gordon Emerson, CityDance Ensemble choreographer and Carbon curator. "It proves that if we can create a musical score from the earth's natural sounds with the help of a global computer infrastructure, then we can find the innovation needed to improve the planet. The fact that this work uses the voices of the earth from three continents is a very powerful metaphor for Carbon as a project and as a concept."

"As a scientist it was my priority on this project to develop tools to help us predict eruptions and ultimately reduce the loss of lives," said DANTE engineer, Domenico Vicinanza. "As a musician and artist too, it was a natural step for me to take these seismic sonification sounds and apply them to the arts. I am delighted that the results, or songs of the earth, are being created into a dance performance that will help raise awareness of climate change."

Dai Davies, General Manager, DANTE said: "The power of next generation research networks has been turning scientific research into a reality for some time now. This project is a testament to how technology can bring researchers and academics from across a multitude of

disciplines together with artists, to facilitate their creative collaboration on a global level. In addition, it provides an innovative use for research data in aid of increasing climate change awareness."

Provided by CERN