Press Release - Climate: what's the weather like in the mountains

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MILAN - What's the weather like in the mountains? Not very good, it seems. In the mountains as in the cities, the same amount of pollutants has been recorded. All the data proving this situation have been collected by the environmental and climatic monitoring project SHARE and will be shown during the international conference: "Mountains: energy, water and food for life. The SHARE project: understanding the impacts of climate change" to be held in Milan on May 27- 28, 2009.

"SHARE is a project of extraordinary scientific value - Maria Stella Gelmini, Italian Minister for Education, University and Research, said today at the press conference introducing the meeting -. It is an example of how to deal with research, networking and teamworking, and how to build virtuous partnerships between public and private. EvK2Cnr has been showing great planning skills identifying global issues and everyday problems. In the coming years we'll see how research is closely related to our everyday life with concrete effects on it".

The Mayor of Milan Letizia Moratti took part at the press conference too, stressing how "the issues pointed out by this conference are in line with those to be faced by the 'Expo 2015".

A worrying level of pollution in the mountain areas, shown by the recent data gathered by the SHARE project, is a good example of the concrete outcomes of the project. The "background stations" in mountain areas enable to monitor the evolution of atmospheric compounds far from the anthropogenic sources of pollution, usually concentrated near the cities and the industrial areas. Such monitoring stations included in the SHARE project - Stations at High Altitude for Research on the Environment - is a project promoted by the EvK2Cnr Committee - watch over pollution processes and carry out observations on cleaner air compared with that of many lowland areas in Italy and abroad, with their megacities and the densely populated and industrialized areas.

Peculiar weather conditions, however, particularly during summer in Italy and in the pre-monsoon season in South Asia – can take the pollution generated in lowland areas up to the high peaks of the Alps, the Apennines or the Himalaya. Mountains play a key role in this process: mountain breezes generated in the

valleys can carry pollutants up to high altitudes, in the free troposphere, where their expected lifetime increases
considerably. Thus, mountains become a "receptor" of pollution produced in the neighbouring plains and even in more distant regions.

The Po valley is one of the most polluted areas in Europe because of substantial human activities, but also because of the orographical nature of the ground, facilitating the long term accumulation of pollutants. In Asia, the Indo-Ganges plain is characterized by much higher pollutant emissions if compared with the Po valley. Many human activities, the nature of the ground and the atmospheric circulation favour the long term accumulation of pollutants in this wide plain. As a consequence, an enormous “layer” of pollutants has been developing over the years. Such a layer, overcasting the plain, is as broad as the United States and over 3 kilometres thick; it is known as the Atmospheric Brown Cloud.

Included in the SHARE project, two stations – the “O. Vittori” station on Mount Cimone in Italy, and the “Nepal Climate Observatory – Pyramid (NCO-P)” in the Khumbu Valley –monitor both the Po valley and the Himalayan southern region surrounding Mt. Everest. The goal is to understand how much mountains are affected by the transportation of pollutants, a phenomenon capable of heavily influencing climate and environment.

"The data we have gathered – says Paolo Bonasoni, head of SHARE project – show surprisingly high concentrations of Black Carbon and other pollutants that may contribute to a warming process of the atmosphere, similar to the effect produced by greenhouse gases and, among other things, play an important role in glaciers melting. The presence of such pollutants is not only a result of human activity, but it is also a consequence of natural phenomena. In spring, during our latest mission in the Himalayan region, the NCO-P recorded a very high level of carbonaceous aerosols, ozone and other pollutants above 5000 metres. This was the result of hundreds of fires that have been devastating Nepal since the end of April 2009".

Similar events, caused by the arboreous fires in Northern Africa, were detected in Italy by the Mount Cimone monitoring instruments. This confirms the idea that pollution has no boundaries: even in Italy, we must consider what happens abroad and not only the human activities of the Po valley and its surroundings. "Governments must agree on a decisive new emissions reduction - said today Gaetano Leone, Unep Deputy Regional Director Europe, during the press conference in Milan - and adaptation-focused regime to protect forests and mountain ecosystems: an estimated four billion people ultimately derive their water from them. Government coordination and scientific research play a key role in this action, because market is not always so far-seeing. Many of the transformational technological opportunities emerging across the globe right now were originally incubated in the world's universities, colleges and research institutes. EvK2Cnr committee is a perfect combination between the research capacities of the National Research Council and the dynamism of the private sector and is not surprising that the mixture of these two worlds brought so many results and new initiatives".

"The EvK2Cnr Committee is currently evaluating the installation of a new monitoring station in Pakistan - announces Agostino Da Polenza, President of the EvK2Cnr Committee –within the framework of the ABC-UNEP project in the Karakorum area. We are also planning the installation of a new station in the Central Alps, to the north of the Po valley, within the borders of the Stelvio National Park. These two stations will be complementary to the NCO-P and the

Mount Cimone station. They will allow to better quantify the climatic impact of pollution transportation from the plains to the mountains and the free troposphere".

"The health of the planet reflects itself in the environmental conditions of the mountains - said today Edoardo Croci, councillor of mobility, transport and environment of the Municipality of Milan -, they are precious sources of natural resources. The scientific observations gathered by the SHARE project in the Himalayas, in Nepal, in Pakistan but also in Africa and soon in South America, are very important to understand the ongoing effects of climate change. The higher weather station in the world, installed at 8000 metres a.s.l., on Mount Everest South Col, provides precious data on the effects of climate changes on mountain ecosystems. The city of Milan will show what happens on the "roof of the world" through a special video produced by EvK2Cnr to be shown soon on the giant screen in Piazza Duomo".

However, the SHARE project doesn't just monitor and collect atmospheric data. Besides this principal activity, many other complementary actions have been fostered, including the development of innovative technologies in the field of climate and environmental monitoring. A sophisticated technological system called Nano-SHARE has just been tested in the Khumbu valley. This innovative system, extremely agile and sophisticated, will enable to carry out measurements in remote sites where the construction of a laboratory or a standard monitoring station would be too difficult or expensive. It uses renewable energy sources with low environmental impact.

Another related ongoing activity is the creation of an integrated climatic and environmental information system about mountains. This project, undertaken in cooperation with UNEP-Vienna, will enable a synergic collection of information organized in a multidisciplinary database, available to governmental, as well as to non-governmental stakeholders and to the international scientific community. The abilities and skills to implement the SHARE information system and to make it fully operating are available at L'Aquila University and the CETEMPS center of excellence. In these days, contacts are being taken with Prof. Guido Visconti, researcher at L'Aquila University and director of CETEMPS, in order to define the implementation of a project involving young graduates of the local University.

In the next two days, researchers coming from all over the world will gather together on the occasion of the conference "Mountains: energy, water and food for life. The SHARE project: understanding the impacts of climate change" to exchange views about climate and mountains. Atmosphere, climate, water, glaciers, agriculture and biodiversity: these
the issues on the table. Beside the role of the mountains as key indicators of climate change, they will discuss also the impact of global warming on mountain ecosystems, dedicating special attention to adaptation policies, health, energy and food security. The goal is to promote sustainable development of mountain ecosystems, crucial for the welfare of the Earth. The conference will be held in Milan, on May 27 and 28, 2009, in the
historic venue of Palazzo Serbelloni, in the "Circolo della Stampa". It is organized by the EvK2Cnr Committee, the Commune of Milan, the National Research Council, the Expo 2015 Committee, in collaboration with UNEP and with the technical cooperation of FAO. The conference has also received the High Patronage of the President of the Italian Republic, the patronage of the Ministry of Foreign Affairs, the Ministry of Environment, the Ministry of Research, and the Lombardia Region.

“Today and tomorrow’s meeting symbolise that the attention to mountains is not melting like the glaciers - said today Gaetano Leone - but actually growing. Climate change is the challenge for this generation. In the coming years, with the support of the Italian Government and in close cooperation with our host, the EvK2Cnr Committee, UNEP as the Environmental Reference Centre of the Mountain Partnership will promote the establishment of a Global Network of High Altitude Monitoring Stations in order to assist the scientific community in better understanding the phenomena related to climate change especially in mountains".

ATTACHMENTS
Everest, cloud of pollutants above 5000 metres near the Pyramid Laboratory (April, 2009):
Photo:
http://newsletter.evk2cnr.org/webapp/link.php?M=16386&N=21&L=84&F=T
Video:
http://newsletter.evk2cnr.org/webapp/link.php?M=16386&N=21&L=83&F=T
Press kit
http://newsletter.evk2cnr.org/webapp/link.php?M=16386&N=21&L=76&F=T
http://newsletter.evk2cnr.org/webapp/link.php?M=16386&N=21&L=77&F=T

Graph
http://newsletter.evk2cnr.org/webapp/link.php?M=16386&N=21&L=78&F=T
http://newsletter.evk2cnr.org/webapp/link.php?M=16386&N=21&L=79&F=T

Photos of the press conference May 26, 2009
http://newsletter.evk2cnr.org/webapp/link.php?M=16386&N=21&L=80&F=T
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Photos
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http://newsletter.evk2cnr.org/webapp/link.php?M=16386&N=21&L=92&F=T

Nco-P real time data: http://newsletter.evk2cnr.org/webapp
/link.php?M=16386&N=21&L=93&F=T
Aws South Col (Everest, 8000 m) real time data:
http://newsletter.evk2cnr.org/webapp/link.php?M=16386&N=21&L=94&F=T

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