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MasterOfNewTechnologiesUsingServices

Cloud computing of environmental data

Initiated and driven by Dominique Laffly, geographer, university professor and member of LRA laboratory (ENSA), MONTUS is one of six French projects selected among the 147 selected for than 874 candidatures. One million euros will be financed by the European Union in the framework of Erasmus + Capacity Building. This program funds "*transnational partnerships between educational institutions and organizations, training and youth programs in order, promoting cooperation and development*". MONTUS funded for 3 years, gathered around the University of Toulouse 2 Jean Jaurès, the National school of architecture (ENSA Toulouse), the International School of Information Processing Sciences (EISTI, Pau campus), University of Ferrara in Italy, university Brussels Vrije, Faculty of Engineering an Technology of Vietnam National University (Hanoi), the Hanoi Architectural University, the Nong Lam university of Ho Chi Minh City, the Asian Institute of Technology (AIT – Pathumthani, Thailand), the Walailak University (Nakhon Si Thammarat, Thailand) and two Cambodian institution in Phnom Penh: the Royal University of Fine Art and the Institute of Technology of Cambodia. Three associated partners join MONTUS: French Agency of Francophonie (AUF – Asia Pacific, Hanoi), Meteorological Environment Earth Observation (MEE0 – Italy), Institute of Agriculture and Environment (IAE, Hanoi) and HUPI cloud computing society (France). In total it's 60 permanent members who will work for MONTUS during three years with height workshops alternatively in Europe and in Asia.

MONTUS came directly after TORUS Erasmus+ capacity building program with the ambition of to develop research on cloud computing in the environmental sciences and promote its education – creation of a dedicated master, Hanoi – in the countries of South East Asian partners.

Schematically, cloud computing consists of pooling hardware and software resources via the Internet. It reduces the costs of processing and storage of information – but it's not for free – in a simplified environment accessible to all. It is also an operational response to the generalized problems of Big Data – also today major issue of Computer Science. This simplification and cost reduction offer methodological possibilities not previously explored (e.g. Artificial Intelligence). The strategy of the project that aims to organize thematic workshops and practical workshops applied to the environment is a real innovation that responds to demand now clearly identified with our partners. Still little teaching, cloud computing, "recent" paradigm of computer science, requires a major theoretical investment before being mobilized by the practice on concrete



projects. Projects that will have at heart to strengthen the links between education, research and environmental engineering. MONTUS is responding to regional priorities set in the framework of ERASMUS + projects. Besides the theoretical and requested practical skills MONTUS develop the specifications for a Master level training with our partners – unique in South-East Asia (and maybe in Europe) – and publish reference books (education, scientific). MONTUS will also deliver practical solutions deployed at three basic levels of cloud computing (infrastructure, platform and software) in the partner countries with computer hardware funded by the project (installed in Hanoi, Pathum Thani and Phnom Penh).

Beyond the capacity building in the field of research, our project has the merit to positioning our disciplines into a major issue of contemporary science, namely how to be able to respond to this new computing paradigm – yet already older than 20 years – without necessarily being prepared, move from a "traditional computing model-based world to mathematical research to find a pattern in the data" (Wikipedia). We are betting that this is a multidisciplinary and transdisciplinary ideally we will succeed. Geography, geosciences and environmental sciences in general can not ignore it. There is urgency in the context of the evolution of computer technology and the ever-increasing volume of data in the context of threats against our climate and sustainable development of the planet, in the context of the need to reduce just as much as bridging the technology gap between north and south, in the context of universal free access to data (open data) – when these are funded by public funds – and free software (open source). At the option of the specializations of teams, MONTUS addresses the following environmental themes to develop on cloud computing: erosion, urban air pollution and Southeast Asia atmospheric pollution, melting permafrost that causes the accelerated release of soil organic carbon in the atmosphere, alert systems of environmental hazards such as forest fires, prospective modeling of socio-spatial practices and land use, web fountains as geoportail of geographical data.

Tomorrow is today already, be prepared for, besides that we should anticipate future IT tools, there is much to bet that these new paradigms will open us many innovative scientific horizons at the heart of our problematics. Let us dare!

<http://www.cloud-montus.com>

