

TIGER: EARTH OBSERVATION TO IMPROVE AFRICAN WATER RESOURCES MANAGEMENT

Diego Fernandez^(a); Francesco Palazzo^(b); Anukka Lipponen^(c); Steve Iris^(d)

^(a)European Space Agency (ESA); via Galileo Galilei, 00044 Frascati, Italy; Diego.Fernandez@esa.int

^(b)SERCO SPA Support to ESA; via Galileo Galilei, 00044 Frascati, Italy; Francesco.Palazzo@esa.int

^(c)United Nations Educational Scientific and Cultural Organisation (UNESCO); 1, rue Miollis, 75732 Paris Cedex 15, France; A.Lipponen@unesco.org;

^(d)Canadian Space Agency (CSA); 6767, Route de l'Aéroport, Longueuil (St-Hubert), QC, J3Y 8Y9, Canada; Steve.Iris@space.gc.ca

ABSTRACT

Africa, because of the range of projected impacts, multiple stresses and insufficient adaptive capacity has been identified in 2007 by the Intergovernmental Panel on Climate Change (IPCC) report as one of the most vulnerable regions of the world to climate change. Water resources are inextricably linked with climate, so the prospect of global climate change has serious implications for water resources and regional development.

The lack of water relevant information in Africa hinders the deep knowledge of its water cycle at continental and basin levels. This represents a critical drawback for African governments to completely understand the current status of the water resources in the continent, to identify the impacts of climate change in water availability and to set up adaptation and mitigation measurements to cope with future potential threats. To predict the future evolution of the water resources, variations due the complex interaction between climate system, land use and the hydrological cycle first need to be understood.

Recognizing the utility of satellite data for water resource management elsewhere and the urgent need for action in Africa expressed at the WSSD, the European Space Agency in the context of the Committee of Earth Observation Satellites (CEOS) WSSD follow-on programme, started in 2002 the TIGER initiative. In the last few years, under the leadership of the African Ministerial Council on Water (AMCOW), TIGER has evolved with main contributions by ESA, the Canadian Space Agency and UNESCO; and with collaboration of other partners such as the Economic Commission for Africa (UN-ECA), the African Development Bank (AfDB) and other African and International organizations. In 2006, AMCOW endorsed TIGER, providing the initiative with the political support and guidance required to achieve its targets.

In 2008, by the end of its first implementation period TIGER has involved more than 150 African institutions (water authorities, universities, technical centres) through projects and training activities. The initiative has supported African partners with free access to space-borne data and products; offered specific training on EO applications for water management and funded pre-operational projects aimed at developing tailored EO-based water information systems in anticipation for the eventual technology transfer and operationalization of demonstrated systems to African water authorities. The results and achievements of these first years of activity have been recognized at the First African Water week organized in Tunis the 25th-29th March 2008 with a direct recommendation: "International initiatives like ... TIGER which provide useful tools to the countries to strengthen their capacities for ensuring water security should be encouraged and supported."

A second implementation period has just been launched, with a scientific component dedicated to support African scientist to develop the scientific skills and the technical capacity to better understand the status of the water resources in Africa as well as the potential impacts of climate change, hence establishing sound scientific basis for developing effective adaptation or mitigation measures at political level.

The paper will provide a summary of the achievements obtained during the first implementation phase and an overview of the activities and expected results of the second phase.

Keywords: water resource management, remote sensing, satellite imagery, sustainable development