

Capacity building program in oceanography and applications in West Africa: goals, achievements and present status.

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West Africa is an area highly vulnerable to climate change, particularly with respect to variations in precipitation and water resources linked to the African monsoon and sea level rise. West Africa is also very poorly equipped to contribute to scientific analysis dedicated to these issues, i.e. climate, water resources, coastal erosion, fisheries, coastal pollution and ports management. In order to support regional laboratories, scientists and universities, a regional doctoral program (Master 2 and PhD thesis) was launched in October 2008 at the International Chair (UNESCO) of Mathematical Physics and Applications (ICMPA) of the University of Abomey Calavi (UAC), Cotonou, Benin. This initiative, also responds to the demands made by scientists in the region and to the priorities of the international program AMMA (African Monsoon Multidisciplinary Analysis; 2002-2009) and regional program PROPAO (Programme Régional d'Océanographie Physique en Afrique de l'Ouest; 2007-2010). It has been made possible through the support by the French "Institut de Recherche pour le Développement" (IRD) and the close involvement of the Université Paul Sabatier (UPS, Toulouse, France). From 2009, the project also benefits of the additional support by the oil company TOTAL. This regional Masters course is the only one dedicated to physical oceanography and applications in Africa and constitutes a unique opportunity for high quality education in Physical Oceanography for the region. About 10 students (from Benin, Togo, Ghana, Cote d'Ivoire, Nigeria, Senegal, Cameroon) attend this program every year. Everyone is awarded some financial support by the program, and all courses are provided in English and French. Established in a UNESCO Chair, diplomas are provided both by the University of Cotonou (Benin) and Toulouse (France). This formation program offers the best students the possibility to continue in PhD studies. At the present time, seven students are doing their PhD in a number of institutes (in France: universities of Grenoble and Toulouse; in Benin: university of Cotonou, and in Brazil: university of Recife). We present here the main academic results along with examples of analysis done during the training periods of the students. The training period topics concentrate mainly on scientific issues related to the tropical Atlantic and the Gulf of Guinea, within in the framework of AMMA, TACE-CLIVAR and/or PIRATA.