Annals of the Academy of Romanian Scientists
Edition ONLINE Physics series
ISSN 2066-8589 Volume **1**, Number **1**/**2009**

CLIMATE CHANGE AND IMPACT ON TERRESTRIAL ECOSYSTEMS

V. CUCULEANU[1]

Abstract. *The main scientific knowledge regarding the climate change and its impact stored during the period 2001-2007, included in the report 3 and 4 of IPCC or in other published works, is presented in this paper. This knowledge particularly refers to new arguments in favour of the anthropogenic origin of the global warming observed in the last century, the corresponding changes induced in the terrestrial ecosystems, the prediction of the global temperature dynamics during the 21st century for different emission scenarios as well as the anticipation of the possible impacts on physical and biological systems. Also, the climate change issue and its potential impact in Romania are discussed.*

Keywords: Ecosystems, climate change, global warming

"In terms of complexity, next to human nature is climate"
Albert Einstein

1. Introduction

At the world meeting of the state leaders, which was held in Rio de Janeiro in January 1992, the United Nation Framework Convention on Climate Change (UNFCCC) was signed by more than 150 countries. This fact proves that the mankind becomes aware of the risk involved by the global warming for its sustainable development as well as of the necessity to take measures for diminishing the possible adverse effects on environment and society. The global warming phenomenon is accepted by all scientific community, being emphasized by the observational data of temperature at global level as well as by the physical and biological natural processes depending on surface air temperature. This phenomenon is attributed to the anthropogenic emissions of greenhouse gases which result in air temperature increase within the layer located between Earth surface and troposphere. In the last time, significant progress in understanding the mechanisms which determine the climate change and the corresponding impacts, have been made. Thus, the fourth IPCC-report published in 2007 presents new observations regarding the dynamics of greenhouse gas concentrations since pre-industrial period until 2005, the air and ocean temperature changes, the decrease tendency of snow cover and sea ice, the increase of the global sea level as well as the changes at continental, regional and ocean basin level. An important issue

[1]Prof. Univ., PhD, Faculty of Physics, University of Bucharest.