

Space for Climate Change Education in Primary and Secondary Schools

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ABSTRACT

Education is a fundamental component for improving the knowledge on global warming and its consequences on life on our planet. In particular, climate change education at a young age, helps to address cognitive and non-cognitive skills. Targeting these competencies will stimulate the establishment of a knowledge-based society, creating thereby, the critical mass to address climate change, from altering individuals' behaviour, to forming international policies. The Climate Change Initiative (CCI) of the European Space Agency holds worldwide climate data records on Essential Climate Variables (ECVs) and provides tools to visualise and analyse these data. In this regard, CCI data and tools form a perfect instrument to create learning resources and improve the climate change literacies in primary and secondary educations. This paper describes the developments exerted to achieve this aim by i-) providing a comprehensive analysis of climate-related topics in the STEM curricula of primary and secondary education, and ii-) developing learning units for the identified climate change topics. The analysis was performed on the STEM curricula of eleven education systems in eight European countries. Ten climate topics were identified and used to develop educational resources covering the three levels in primary and secondary education. The learning outcomes of these resources addressed the factual and conceptual knowledge domains at the first three levels of Bloom's taxonomy. Active learning was engaged through the use of the Climate from Space web application, which allows pupils to interact with actual climate data. Each resource contains an engaging narrative, a teacher guide and students' activity sheets. Examples are provided for six educational resources.

Keywords: Teaching resources, Climate Change Initiative, European Space Agency, Satellite data