PROPOSAL FOR THE DECLARATION OF GEOLOGICAL HERITAGE FOR A BLOCK OF ECLOGITE, SANTA CLARA PROVINCE, CUBA

García-Casco, A.\(^{(1,2)}\), Iturralde-Vinent, M. A.\(^{(3)}\)

\(^{(1)}\) Departamento de Mineralogía y Petrología, Universidad de Granada, Fuentenueva s/n, 18002-Granada, Spain, \(^{(2)}\) Instituto Andaluz de Ciencias de la Tierra (CSIC-UGR), Fuentenueva s/n, 18002-Granada, Spain, \(^{(3)}\) Museo Nacional de Historia Natural, Obispo no. 61, Plaza de Armas, La Habana 10100, Cuba.

Society has the right to know and appreciate the beauty of Nature, and scientists have the responsibility to transfer knowledge and scientific sensibility to Society. Since the early ages of Human Being questions concerning our environment and its evolution (change) have plagued and agitated sensible characters. After the notable progress of Science since the XVIII a.D., Earth scientists have made evident the lengthy history of our Planet, the diversity of environments, geographies, and creatures that have paved the way into present day Earth. Such diversified scenarios are the result of a number of important terrestrial and extraterrestrial factors that control the evolution of our Planet, including Plate Tectonics which is a major driving force for change of the Earth System. Among the various forms of expression of Plate Tectonics, subduction of oceanic lithosphere stands out. By means of subduction, huge amount of lithospheric rock material is deeply buried and recycled along thousands of km in length into the deep mantle, involving huge amount of energy. This process causes significant change in geographies, environments, and ecosystems at the scale of millions of years. Approximately 98% of the subducted rock material is dispersed and recycled in the deep mantle and never returns to the Earth’s surface. However, under certain circumstances, subducted rock fragments return, giving scientist the possibility to decipher processes that contributed to the transformation of our Planet. In addition, these rocks tell us about processes that greatly affect our daily lives, such as the volcanic eruptions, earthquakes, and the deathly 2005 tsunami of Sumatra. Cuba is plenty of rocks that experienced subduction and have returned to Earth’s surface. They are found all along the >1100 km of the main island, from the Cabo San Antonio to Punta Maisí. These rocks tell us about a long history of change in the Caribbean region since the Aptian (ca. 120 million years ago), when the *Tyrannosaurus rex* was only an idea in the plan for the Evolution of the Species. Most of these rocks are found as exotic blocks in tectonic serpentinite mélanges that make much of the geological backbone of Cuba. A beautiful example of this rock type, an eclogite block, is found in the Santa Clara-Encrucijada road (N 22º 32' 20.3" - W 079º 54' 19.3"), in the tectonic mélange of central Cuba. The block has ca. 5 m\(^2\) in area ca. 1.5 m in height, and is located is just a few meters from the road being easily accessible to the public. The rock is beautiful, with a distinctive banded structure and made of amazing crystals of garnet and omphacite that are retrogressed by calcic amphibole and epidote. The rock originally formed close to the Earth’s surface as basalt in the lost Protocaribbean ocean, and was buried down into the mantle to ca. 70 km depth by ca. 120 My ago, during the process of disappearance of such ocean. It is certainly one of the oldest rocks in Cuba. In addition, their minerals show a delicate chemical structure of oscillatory zoning denoting complex thermodynamic (i.e, tectonic) processes during subduction. Such type of zoning is certainly a rare feature of eclogite, making this rock of particular scientific interest for the worldwide geological community. For all these reasons, we strongly recommend the Cuban Government to declare this block of eclogite as a Geological Heritage of the Cuban People, as an effort to acknowledge the International Year of Planet Earth (2007-2009) proclaimed by the United Nations General Assembly in 2006.
Fig. 1. Images of the block of eclogite proposed as Geological Heritage.