Geophysical Research Abstracts
Vol. 16, EGU2014-1673, 2014
EGU General Assembly 2014

Gondwana Tales: an inquiry approach to plate tectonics

Jordi Domènech Casal (1)

(1) Institut de Vilanova, Vilanova del Vallès, Barcelona, Spain (jdomen44@xtec.cat), (2) Grup LIEC, Departament de Didàctica de les Matemàtiques i les Ciències Experimentals, Universitat Autònoma de Barcelona.

Plate tectonics and its effects on the constitution of seas and continents are key models in science education. Fossil evidences are usually taught in demostrative key when Wegener's discoverings about Pangea are introduced. In order to introduce inquiry-based science education (IBSE) approaches to this topic, we propose "Gondwana Tales", an activity where students are asked to use fossil data to reconstruct the geologic history of an imaginary planet. Grouped in independent teams, each team is furnished with stratigraphic columns from several sites containing faunistic successions of real organisms existing in the past in Earth. Students are told to reconstruct a model of the evolution of the continents, by making calculations of relative ages of the fossils, and relating each fossil to a geologic era. The different teams have incomplete and complementary information. After a first step where they have to propose a partial model based on incomplete data, each team receives a "visitor scientist" from another team, this implying an informal scientific communication event. This process is performed several times, engaging a discussion in each team and getting a final consensus model created by the whole class. Correct answer is not given to the students, even at the end of the activity, to keep the activity under the parameters of real scientific experience, where there is not a "correct answer" to compare. Instead of this, and following the IBSE standards, a reflection on the process is proposed to students. The lack of complete information and the need to collaborate are part of classroom dynamics focused to the understanding of the process of creation of the scientific knowledge. This activity is part of the C3 Project on Creation of Scientific Knowledge that is being applied in the school.