



Teaching with Tolkien: environmental degradation of a fantasy world

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In this study, the use of a fantasy world as a tool for teaching Geosciences especially in teacher training at the University of Basel is presented. J.R.R. Tolkien's *The Lord of the Rings* is one of the founding texts of fantasy literature and the centrepiece of a number of writings about the geography, history and mythology of „Middleearth“. The books have long become a cult phenomenon which has been transmitted to a new generation of followers by the massive success of the movie trilogy released between 2001 and 2003 and the upcoming movies on *The Hobbit*. The renewed interest in Tolkien's Middle-earth offers a unique opportunity to connect the Geosciences with literature studies and vice versa. Tolkien's Middle-earth is a distant and yet familiar enough world to allow for an analytical reflection of its geologic and ecologic coherence. The geographical analysis shows that the layout and description of Middle-earth roughly correlates with the paradigms of the Earth Systems Sciences. However, there are discrepancies between the spatial patterns of the various spheres which cannot be attributed just to artistic licence or ignorance, but point to significant issues connected with the moral and symbolic logic of Tolkien's work. For example, the absence of trees and woods in certain parts of “Middle-earth” where they would be expected in view of the description of climate throws into relief Tolkien's preservationist agenda. This setting, i.e. both the correlation between our world and Middle-earth, as well as the discrepancies, allow for a wide range of teaching activities. Apart from basic topics such as geology, more complex issues such as soil and land degradation can be taught by analyzing the environment of Middle-earth. Teaching the importance of soils for political and economic stability is introduced by comparing of existing climate and vegetation maps of Middle-earth. This highlights a discrepancy between land cover and ecologic conditions in the former kingdom of Gondor, most notably a lack of forest in Gondor. A discussion of the reasons for this “mistake” in Tolkien's fantasy world can be used to develop situations leading to soil and land degradation and draw analogues to past and current events in the real world, e.g. the decline of the Roman empire or the desertification in the Sahel. The lack of detailed information about the environment of Middle Earth, combined with its popularity, offers pupils a new freedom to apply their environmental knowledge and formulate a scientific hypothesis outside the pressure of delivering a correct answer. In our experience, this stimulates discussion and a vigorous exploration of the pupils' existing knowledge. Furthermore, a first case of breaking up the traditional barriers between humanities and natural sciences can be achieved by studying Middle-earth.