



Analysis of research trends using Latent Dirichlet Allocation for geologic subdisciplines in South Korea

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Since the mid-twentieth century, geology in South Korea has considerably advanced as a scientific discipline. Over the past few decades, geology has interacted with physical or engineering viewpoints. So, modern geology needs to be interpreted with an interdisciplinary perspective. This study aimed to classify geology's academic subdisciplines in Korean and analyze the evolutionary trend of each subdiscipline in South Korea for 54 years from 1964 through 2018. In preprocessing, we collected 13,266 titles from 10 of Korean geological journals and deleted the words that do not require. After that, we classified geologic subdisciplines by Latent Dirichlet Allocation (LDA), a good tool to find topics in text data. According to the result of this study, the optimal number of subdisciplines in LDA was nine (mineralogy, petrology, sedimentology, economic geology, geotechnical engineering, engineering geology, environmental geology, geophysics, seismology). We then calculated the annual proportion from each subdiscipline to investigate evolutionary trends using polynomial regression. Results showed that mineralogy, petrology, sedimentology, and economic geology proportions increased in 1980. Geotechnical engineering and engineering geology proportions increased in 1990. Environmental geology, geophysics, and seismology proportions increased in 1995. The results of this study fill an important gap in understanding the research trends of geologic subdisciplines in South Korea, showing their emergence, growth and diminution.