

Abstract

[Research Title]

Establishment of Landfill Emissions Model for Determining the Post-Closure Care Period by Physics- and Statistics-Combined Approach

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For the development of information technology at waste landfills, it is essential to make practitioners aware of the importance of on-site information. In order to encourage their behavioral change, it is possible to appeal to the effective use of information through many functions of web applications. In this research project, we developed an application environment where practitioners can easily use the visualization, analysis, and forecasting that researchers specialized in through online. By using this system in daily work, practitioners can proactively engage in maintenance and management of landfills while forecasting their fates. Data entered in the system can be accumulated as information essential for research and technology developments. Therefore, as an effective use of the accumulated data, we also have developed a new method to more accurately predict chemical concentrations leaching from landfills through data assimilation. The trend was calculated using a physical model based on traditional theory and the variation from the trend was estimated using a statistical model, resulting in forecasting leachate concentrations by overlapping each calculation result.

[References]

- Ishimori H., Isobe Y., Ishigaki T., Yamada M. (2022) Undisturbed Sampling of Waste Layer and Its X-ray CT Image Analysis for Estimating Water Channel Flow, Proceedings of the 11th Asia-Pacific Landfill Symposium, pp.191-196
- Isobe Y., Ishimori H., Ishigaki T., Yamada M. (2022) Time-lapse Electrical Resistivity Tomography to Search Water Channel Flow in the Semi-aerobic Landfill, Proceedings of the 11th Asia-Pacific Landfill Symposium, pp.211-216

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