

## *In Focus:* Data science and ecological environmental governance

Ecological environmental governance is a comprehensive and complex system that involves climate change response, pollution control, ecological protection and restoration, environmental monitoring and early warning, resource management, environmental risk assessment, cross-departmental cooperation and international cooperation, and generates massive amounts of data every day. Data science can provide powerful data analysis and processing capabilities to help us better understand and manage complex and multifaceted environmental issues.

Data science technology, especially big data and machine learning technology, is widely used in the prediction of global climate change. By analyzing large amounts of climate data such as temperature and precipitation collected from weather stations, scientists can identify climate patterns and predict future changes. These predictions are essential for developing policies to adapt to and mitigate climate change. Data science also plays a key role in the field of environmental pollution monitoring. Using data from remote sensing technology and ground monitoring stations, scientists can monitor air and water pollution in real time, identify pollution sources, and evaluate the effectiveness of pollution control measures. This helps to take timely action to mitigate the impact of pollution on human health and ecosystems. In addition, in terms of natural resource management, data science provides a way to effectively manage natural resources through continuous monitoring of ecosystems, forest cover, water resources, etc.

It should be noted that uneven data quality, limited data sharing, privacy protection and technical barriers, data ethics and other issues are still the main challenges facing data-driven ecological environmental governance. For example, in November 2021, UNESCO developed the first-ever global AI ethics standard, *the Recommendation on the Ethics of Artificial Intelligence*, which was unanimously adopted by 193 member states. This standard states that member states should introduce incentives when necessary and appropriate to ensure the development and adoption of rights-based, ethical, AI-driven solutions to resist disaster risks, monitor and protect the environment and ecosystems, and promote their regeneration, and protect the Earth.



This month's journal focuses on the series of topics related to Data Science and Ecological Environmental Governance and discuss with readers the application and development of data science in ecological environmental governance.

