The application of the ecological monitoring IoT network of Heihe River Basin

Jianwen Guo (1) and Adan Wu (2)

(1) Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Laboratory of Remote Sensing and Information Resources for Cold and Arid Regions, Lanzhou, China (guojw@lzb.ac.cn), (2) Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Laboratory of Remote Sensing and Information Resources for Cold and Arid Regions, Lanzhou, China (wuadan@lzb.ac.cn)

The new monitoring system based on Internet of things technology can provide advanced and complete capacity for wide range and sustainable field monitoring data acquisition and sharing. This paper introduces the application of the ecological monitoring IoT network of Heihe River Basin.

By adopting a series of new monitoring equipment based on the technology of Internet of things, the monitoring of the key parameters of water, soil and air in the area of Heihe River Basin is realized. At the same time, combined with the technology of Data Automatic Assembling, through the unified remote data receiving module, data preprocessing module, automatic warehouse module, relational database system, and the online visual monitoring data management application platform, the efficient remote monitoring network and monitoring data application system can be formed, which can effectively improve the monitoring capability and the real-time and availability of monitoring data.

As a application example, an application system was developed for the ecological monitoring IoT network of Heihe River Basin. The observation data gotten from the remote data collector would be collected, preprocessed, evaluated, and shared full automatically.

The uploaded data first passed through the data interface. The function of the data interface is to normalize the raw data, which would come from different kinds of instruments, in a normalized way automatically. Then the raw data and the format-normalized data are putted into a specially designed relational observation database. All acquired data was saved in a relational database. Users can access the data via a mobile terminal or computer remotely.