

环境工程 生命科学

## 崇明三岛土壤主要养分的时空变异特征

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**摘要** 2007年采集了崇明三岛(崇明岛、长兴岛和横沙岛)土壤表层(0~20 cm)土样135个, 测试和分析了其中有机质、全氮、有效磷和有效钾的含量. 在ArcGIS 9.1平台上, 运用地统计学和叠置分析等方法, 研究了土壤主要养分空间分布特征. 结果表明, 崇明土壤全氮和有机质含量总体上呈条带状或斑块状分布, 以城桥镇和堡镇为两个高值中心, 分别向西北和东北逐渐递减. 有效磷和有效钾含量分别呈现斑块状和条带状分布, 且二者的分布基本呈互补趋势(有效磷含量高的地方一般有效钾含量很低). 与1980年数据相对比, 土壤有机质和全氮含量在20多年来没有明显变化, 而有效磷含量明显升高, 有效钾含量有所降低. 这表明崇明三岛存在一定程度的施肥结构不合理的问题.

**关键词** [崇明](#) [土壤养分](#) [时空变异](#) [GIS](#)

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## Spatio-temporal variation of main soil nutrients in three islands in Chongming (Chinese)

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### Abstract

According to the data of organic matter (OM), total nitrogen (TN), available phosphorus (AP) and available potassium (AK) of topsoil samples (0~20 cm) collected from 135 sites in 2007, the spatial distribution characteristics of the main soil nutrients in three islands in Chongming, Chongming island, Changxing island and Hengsha island, were analyzed using the methods of geostatistics and overlay analysis in the software of ArcGIS 9.1. The results showed that the areas with higher OM and TN were mainly distributed in Chengqiao town and Bao town, and the values of both indices declined gradually towards northwest and northeast. The distribution trends of AP and AK were basically complementary. When comparing the values of 1980 and 2007 in terms of all these indexes, OM and TN did not change significantly, whereas AP increased rapidly and AK decreased. The results further revealed the unbalance in soil fertilization.

**Key words** [Chongming](#) [soil nutrients](#) [spatio-temporal variation](#) [GIS](#)

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