

环境地球化学与健康

Environmental Geochemistry and Health

中国环境地质地球化学记录与环境变化学术讨论会论文集

中国矿物岩石地球化学学会



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环境地球化学与健康

中国环境的地质地球化学记录与环境变化学术讨论会

论文集

China National Symposium on Geological and Geochemical
Records and Environmental Changes

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内 容 提 要

本书是中国矿物、岩石、地球化学学会和中国环境学会联合发起召开的《中国环境的地质地球化学记录与环境变化》学术讨论会的论文汇编，共收入论文90篇，并附有英文摘要。内容包括从各类环境记录中（例如树木年轮，冰芯，黄土，冰川，海洋沉积，湖泊沉积，河流泥沙，沉积岩剖面，孢粉等）所提取的中国过去环境变化的信息和研究过去环境变化规律方面的进展；在具有全球性意义或影响的重大环境变化方面所取得的研究成果；以及中国环境质量现状和演变趋势的综合研究成果。

本书可供环境科学，地球化学，地质学，古生物学，地理学，土壤学等学科的研究人员和教学人员参考。

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变化学术讨论会论文集

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前 言

人类对“地球的持续可居住性”的忧虑，已成为当代国际环境科学研究的主导方向。全球环境演变的严重趋势与对策研究，推动了国际地圈——生物圈计划(IGBP)的开展，国际环境地学界正酝酿开展过去全球变化的研究，为认识现代环境的状况和研究人类生存环境的演变趋势提供基础。

根据国内外环境地质地球化学的研究现状和发展前景，中国矿物岩石地球化学学会和中国环境学会联合发起召开以“中国环境的地质地球化学记录与环境变化”为主旨的学术讨论会，得到全国同行的热情支持。经过半年多筹备，已收到论文90篇，现编汇成册，以利学术交流。

本次学术会议将侧重讨论：从各类环境记录中（如树木年轮、冰岩芯、黄土、古土壤、冰川、化石、孢粉、海洋沉积、湖泊沉积、河流泥沙等）提取过去环境变化信息的方法、技术和研究过去环境变化规律方面的进展；研究和阐明现代环境质量的古地理、古气候、古生态、古地质地球化学方面的历史和地史记录的研究进展与成果；对温室效应气体的环境地球化学，大气污染和酸沉降，日益增长的人口对地球环境的影响，人为活动对元素地球化学循环的扰动，岩石圈、土壤圈、水圈、气圈、生物圈圈内和圈层界面之间物质和能量的运动、交换、循环及环境效应等具有全球性意义或重大环境变化方面所取得的研究进展和成果；以及中国环境质量现状和演变趋势的综合研究、教学模拟分析、对策分析等。

《中国环境的地质地球化学记录与环境变化》学术讨论会论文集反映了我国环境地质地球化学研究进展的历史足迹，必将为推动我国环境地质地球化学发展发挥重要的作用。

欧阳自远

1990.8.18.

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树木年轮元素含量对环境污染指示作用的研究

黄会一 蒋德明 张有标 林治庆 王育英

(中国科学院沈阳应用生态研究所)

前 言

随着经济的迅速发展,人类活动对环境的干扰和压力日益强烈,我们赖以生存的环境已发生了种种变化,引起人们的密切关注。为了正确了解这种变化的局部和全球性后果,制定有效对策,进行过去环境变迁历史、现代环境状况以及未来环境发展趋势的研究工作已作为迫切问题提到日程上来开展这一领域的研究,无疑需要多学科综合进行,其中利用树木年轮分析进行这方面的工作得到了普遍承认,其优越性日益显示出来。七十年代以来,国际上大量利用树木年轮分析研究环境问题,形成一个活跃的领域。

研究材料与方 法

一、供试树种:我国主要造林绿化树木11种。

二、暴露试验:将栽植于钵钵的幼树在生长盛期运至大气重金属污染区——冶炼厂暴露,生长期末对树木和土壤进行各项指标的测定与分析。

三、放射性同位素示踪试验:在盆栽幼树的土壤中施 $\text{Cd}^{115+115\text{m}}$,总放射性为400微居里/盆,土壤含镉量10ppm。生长期末测定树木各器官中放射性镉含量。

四、年轮盘采集:在镉污染地区的人工林内评选标准木10株,于胸高直径处截取完整的年轮盘。并在标准木附近设置土壤剖面10个,每年定期采样、测定。

五、年轮盘定年和判读:用交叉法去除伪年轮,按南、北、东、西四个方向定年和测定,测定精度0.001mm。

六、重金属含量测定:植物样品湿法灰化,土壤样品0.1N盐酸浸提,原子吸收分光光度法测定。

结 果 与 讨 论

一、树干木质部元素含量与外界环境中相应元素浓度的关系。