

C N Ratio Colorado State University

The 2014 International Conference on Water Resource and Environmental Protection [WREP2014] aims to bring researchers, engineers, and students to the areas of Water Resource and Environmental Protection. WREP2014 features unique mixed topics of Water Resource and Environmental Protection in the context of building healthier ecology and environment. The conference will provide a forum for sharing experiences and original research contributions on those topics. Researchers and practitioners are invited to submit their contributions to WREP2014. This proceeding tends to collect the up-to-date, comprehensive and worldwide state-of-art knowledge on water resource and environmental protection. All of accepted papers were subjected to strict peer-reviewing by 2–4 expert referees. The papers have been selected for this proceedings based on originality, significance, and clarity for the purpose of the conference. The selected papers and additional late-breaking contributions to be presented will make an exciting technical program on WREP2014 conference. The conference program is extremely rich, featuring high-impact presentation. We hope this conference will not only provide the participants a broad overview of the latest research results on water resource and environmental protection, but also provide the participants a significant platform to build academic connections.

Summary: Full text and summaries of conference papers.

Precipitation is a well-recognized pillar in global water and energy balances. An accurate and timely understanding of its characteristics at the global, regional, and local scales is indispensable for a clearer understanding of the mechanisms underlying the Earth's atmosphere–ocean complex system. Precipitation is one of the elements that is documented to be greatly affected by climate change. In its various forms, precipitation comprises a primary source of freshwater, which is vital for the sustainability of almost all human activities. Its socio-economic significance is fundamental in managing this natural resource effectively, in applications ranging from irrigation to industrial and household usage. Remote sensing of precipitation is pursued through a broad spectrum of continuously enriched and upgraded instrumentation, embracing sensors which can be ground-based (e.g., weather radars), satellite-borne (e.g., passive or active space-borne sensors), underwater (e.g., hydrophones), aerial, or ship-borne.

Trends in ecological modelling. Theory and methods of ecological modelling. Application of ecological models to animals. Application of ecological models to land resources.

Application of ecological models to water resources. Application of ecological models to energy development. Summary and synthesis.

"In "Soil and Your Health," eminent health writer and environmentalist Beatrice Trum Hunter discusses the natural resource that grows our fruits and vegetables. The quality of food depends on the quality of the soil in which it is grown. Is organically produced food superior to conventionally grown food? How do earthworms and trace minerals benefit the soil and the food and feed grown on it? How do intentionally applied fertilizers, pesticides, and sludge, as well as inadvertent contaminant affect soil? Hunter responds to the mounting soil-quality crisis with hopeful answers and measures beginning in our own gardens and farms."--Publisher description.

Ecological stoichiometry concerns the way that the elemental composition of organisms shapes their ecology. It deals with the balance or imbalance of elemental ratios and how that affects organism growth, nutrient cycling, and the interactions with the biotic and abiotic worlds. The elemental composition of organisms is a set of constraints through which all the Earth's biogeochemical cycles must pass. All organisms consume nutrients and acquire compounds from the environment proportional to their needs. Organismal elemental needs are determined in turn by the energy required to live and grow, the physical and chemical constraints of their environment, and their requirements for relatively large polymeric biomolecules such as RNA, DNA, lipids, and proteins, as well as for structural needs including stems, bones, shells, etc. These materials together constitute most of the biomass of living organisms. Although there may be little variability in elemental ratios of many of these biomolecules, changing the proportions of different biomolecules can have important effects on organismal elemental composition. Consequently, the variation in elemental composition both within and across organisms can be tremendous, which has important implications for Earth's biogeochemical cycles. It has been over a decade since the publication of Sterner and Elser's book, *Ecological Stoichiometry* (2002). In the intervening years, hundreds of papers on stoichiometric topics ranging from evolution and regulation of nutrient content in organisms, to the role of stoichiometry in populations, communities, ecosystems and global biogeochemical dynamics have been published. Here, we present a collection of contributions from the broad scientific community to highlight recent insights in the field of Ecological Stoichiometry. Includes abstracts of the annual meetings of the American Society of Agronomy; Soil Science Society of America; Crop Science Society of America (- of its Agronomic Education Division).

In the 21st century, management of municipal solid waste (MSW) continues to be an important environmental challenge facing the U.S. Climate change is also a serious issue, & the U.S. is embarking on a number of voluntary actions to reduce the emissions of greenhouse gases (GHGs) that can intensify climate change. By presenting material-specific GHG emission factors for various waste management options, this report examines how the two issues -- MSW management & climate change -- are related. The report's findings may be used to support a variety of programs & activities, including voluntary reporting of emission reductions from waste management practices. Charts, tables & graphs.

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