

William Li reviewed some of the recent reports in the literature that address issues surrounding microbes and spatial scaling. He pointed out that a compilation of extant microbes listed in textbooks might fall short of a true census because the concept of species is problematic. Bill outlined recent studies on soil fungi and salt marsh bacteria in which the taxa-area relationships were used to extrapolate from local to regional scales. The slopes of these relationships were low, indicating that taxonomic richness is not greatly dissimilar at different scales, suggesting a ubiquitous distribution of many microbes. However, more recent studies of bacteria in water-filled treeholes and of phytoplankton in limnetic and marine systems indicate that the slopes are much higher in non-contiguous habitats. In other words, diversity at local scales may not be easily extrapolated to the global scale. The taxa-area issue remains unresolved for marine microbes. Bill suggested that Alan Longhurst's concept of the biogeochemical provinces in the ocean might be one way to focus our census efforts. This approach has been used to scale up primary production from the regional to the global scale. For the census of marine microbes, it therefore seems worthwhile to understand the patterns and mechanisms that relate microbial diversity to primary production.