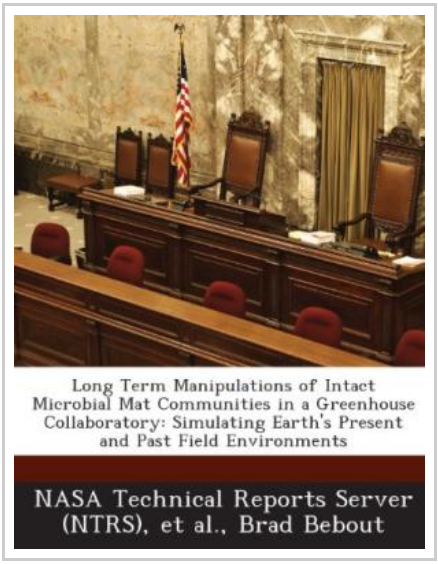

Long Term Manipulations of Intact Microbial Mat Communities in a Greenhouse Collaboratory: Simulating Earths Present and Past Field Environments

By Brad Bebout

Bibliogov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 34 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.Photosynthetic microbial mat communities were obtained from marine hypersaline saltern ponds, maintained in a greenhouse facility, and examined for the effects of salinity variations. Because these microbial mats are considered to be useful analogs of equivalent ancient marine communities, they offer insights about evolutionary events during the greater than 3 billion year time interval wherein mats co-evolved with Earths geosphere and atmosphere. Although photosynthetic mats can be highly dynamic and exhibit extremely high activity, the mats in the present study have been maintained for more than one year with relatively minor changes. The major groups of microorganisms, as assayed using microscopic, genetic, and biomarker methodologies, are essentially the same as those in the original field samples. Field and greenhouse mats were similar with respect to rates of exchange of oxygen and dissolved inorganic carbon across the mat-water interface, both during the day and at night. Field and greenhouse mats exhibited similar rates of efflux of methane and hydrogen. Manipulations of salinity in the water overlying the mats produced changes in the community that strongly resemble those observed in the field. A...

Reviews

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