

## **Introduction: Session 8: Large Scale Controlled Environments**

Two late 20<sup>th</sup> Century developments have led to the construction of several new and exciting controlled environment spaces on a scale not seen since the glass and wrought iron structures of the Crystal Palace and the Kew Gardens Palm House in the 19<sup>th</sup> Century.

First, the success of space exploration stimulated the idea of people living in an enclosed and balanced space. The test of this idea, Biosphere 2 at Oracle in Arizona, was ended ahead of schedule due to concerns about its management but its large controlled environments were taken over by Columbia University as its new Western Campus. The first contributor, Allen Wright, shows how this facility has been successfully adapted to become a first class educational and research institution capable of replicated investigations of large ecosystems.

Secondly, the design and construction of large span roofs has been stimulated by Buckminster Fuller's development of the geodesic dome. The second and third papers in this session describe two controlled environment buildings with transparent domed roofs funded to mark the start of the Third Millennium. Peter Thoday charts the progress of the Eden Project in Cornwall, UK, in solving the engineering and scientific problems to create two biomes (tropical and mediterranean) large enough to grow representative plants from mosses to mangroves to large trees from six regions of the world. He describes the educational philosophy that has enticed more than one million visitors through its doors in the 16 months since it opened to the public in May 2000.

The final contribution from Wolfgang Bopp describes the progress from design and engineering to construction to successful installation and establishment of mediterranean ecosystems in the new Great Glasshouse; a single lozenge shaped geodesic dome at the National Botanic Garden of Wales, UK.