Introduction

James D. Burke and Barney B. Roberts

A major objective of this workshop was to develop scenarios for NASA's advanced missions. The first scenario, business as usual, we labeled "NASA baseline plan." It shows the expected development of NASA programs under existing budget trends. We developed two, more aggressive scenarios that would require funding above the steady-state budget projection. These scenarios were built on the assumption that significant nonterrestrial resources would be available. The workshop then sought to identify additional technologies that would support the alternative scenarios.

In proposing alternative scenarios, we debated what goals were most promising or would have the most public support. It was apparent that limiting the concept of space resources to tangible materials from the Moon or asteroids could fail to support many popular space initiatives, such as a manned Mars mission, significant commercial applications in low Earth orbit (LEO) or geosynchronous Earth orbit (GEO), and tourism. Thus, although the general thrust of the alternative scenarios was toward the utilization of nonterrestrial resources, one scenario emphasized the Moon ("space resource utilization") and the other was more general ("balanced infrastructure buildup").

To avoid being short-sighted on the subject of space resources, the workshop expanded its list to include such items as vacuum, low gravity, and location/view. We also note that our more complete list might not exhaust the possibilities.

Once these points were agreed upon, the workshop divided the analysis and reporting tasks among its members. The contributed sections discuss the baseline scenario, generic alternatives, potential sociopolitical conditions, the common or nodal technologies required to support the alternative scenarios, and issues for further study.