

SPACE POLICY SUMMIT PIONEERS TASK FORCE

Space Exploration

Theme

Optimizing global efforts in future space exploration.

Mandate

To articulate a broad strategy for space exploration encompassing both national and international interests, and to identify mechanisms that could be employed in developing common goals and implementing a coordinated global program.

Preface

Throughout its history, the human race has been driven to advance its sphere of habitation, to spread forth from its African cradle, cross the continents, sail the oceans, take to the sky, and soar beyond. It is inevitable that men and women will eventually be living and working away from Earth, just as it was inevitable that western North America would be settled once Lewis and Clark began exploring it. Space is yet another challenging and rewarding environment to be explored, understood and utilized. The question is not whether the commitments necessary to explore space will be made, but rather when and how.

The Pioneers Task Force proposes a conceptual approach to space exploration, a strategy that uses robotic and human missions in a complementary manner to explore space using a science-driven, technology-enabled approach. It is not a mission-driven program based on “giant leaps,” but rather a systematic “building-block” approach in which each step leans on the past and leads towards the future. This strategy would leverage national efforts through international coordination and cooperation, and would capitalize on synergies among the civil, military, and commercial space sectors. It is an approach aimed at maximizing return on investment, ensuring benefits to all nations, and accelerating the pace of scientific discovery and technological development in a sustainable manner.

Introduction

Humans explore. It is an innate and fundamental human need to understand our relationship with the Universe. *How did we get here? Where are we going? Are we alone?* For all of human history we have sought answers through philosophy and

religion, through mythology, folklore and magic, and through science. Space exploration now represents our greatest opportunity for pursuing an understanding through science. We have the audacity to think that we can address these questions in the space program because the point has been reached where we can actually engineer the instruments that will allow us to get many of the answers. Flight off the planet has been given to us.

Proponents of aggressive exploration programs look back at the early Space Age and pine for the political support and budgets of those days. The justification for the early American and Russian space programs was simple and solid: The Cold War. In the United States, President John F. Kennedy wanted to use achievements in the civil space program to project the relative strength of American vs. Soviet technology to allies and enemies alike. This was the catalyst for both robotic missions like Mariner, Venera, Pioneer, and VEGA, and for the human lunar landing programs of both nations. The U.S. Congress funded Apollo because it was a powerful symbol of American might and prestige, not because it developed new technology or advanced our scientific understanding of the Moon or encouraged the study of science and engineering. But the Cold War is over.

Recognizing the loss of a powerful geopolitical imperative to spawn a new space exploration initiative of the scope and pace of Apollo, some proponents claim the public is clamoring for an aggressive space program. But the Task Force does not believe that it was public support that led to the massive commitments of resources on both sides of the U.S.-Soviet "Race to the Moon". Furthermore, it does not believe that a sudden change in public support levels for space exploration would bring back those glory days. Public support does not necessarily translate into demand. In any event, politicians know that there are relatively few single-issue space voters. In this climate, the likelihood in the foreseeable future is low that any single nation will commit a massive new infusion of government funds dedicated to a major space exploration initiative.

It is often said that technology spin-offs pay back the investments in space activities, that space activities stimulate students to learn science and math, and that cooperative space programs foster improved international relations. These are real and significant *benefits* flowing from space activities. However, they are not in themselves, even *in toto*, a compelling *rationale* for exploration. Any attempt to justify space program expenditures based on an accounting scheme matching benefits to investments misses the point.

The bottom line is that we explore because we are human. We intuitively seek to gain an understanding of ourselves, our planet, our Solar System, and beyond. We explore because of our awe and wonder about who and what we are in this gigantic Universe. We seek knowledge because we must. And at the same time, we realize that a society that looks inward, that concentrates only on today and tomorrow, that does not look to the far horizon with great aspirations is a society that is in retreat or decline.