Blue Team Policy Option Briefing Report

Dear Mr. President,

While conserving the resources our own planet has to offer has become an issue of immediate importance, an implicit consequence of the known scarcity of said resources is that they will one day cease to be available. The degradation of Earth caused by human activities, including the pollution of its atmosphere and water, is equally well established and understood. These considerations, combined with the issues presented by the need to supply the wants of an ever growing human population, signpost the inevitability of a search for another home for at least part of the species. Considering the rapid pace of discovery of NASA's exoplanet exploration program, it is appropriate to engage in discussion about how to manage the likely discovery of an habitable exoplanet. The panel has identified key areas of focus in conditioning this debate. Namely, (1) investment in next-generation space propulsion technology, and (2) the establishment of a committee to formulate international protocols to handle the potentiality of an encounter with alien life.

Our concerns are motivated by the growing success of NASA's Exoplanet Exploration Program to identify and characterize exoplanets. The program has produced a rapidly expanding catalogue of known exoplanets (see Fig. 1). Importantly, transit photometry is now providing our first knowledge about the composition of exoplanet atmospheres via study of the emission spectrum of light passing through them. Considering the recent success of these measures, the panel advises a continuation of funding in support of efforts to continue finding exoplanets, studying their atmospheres, and gauging their habitability.

Given the growing number of exoplanet candidates for habitation, it is an appropriate time to consider options regarding how best to move people and infrastructure far away from Earth, should it become necessary. This proves an immense challenge – even the closest star, Proxima Centauri, is over four light years away. Current combustion-based methods of propulsion do not reach a sufficient energy density to span such distances. The panel therefore recommends investment in an area that has great potential for sustained high-speed travel – fusion energy. It is the panel's view that harnessing this type of power will allow men to venture farther into the universe than previously conceivable. The development of nuclear fusion for the purposes of space travel will require much basic science research before we can begin to tackle the engineering challenges associated with spaceflight. As the need for nuclear fusion is subject to increase, we recommend a timely investment in this area.

The last consideration the panel feels it necessary to bring to your attention is the possibility of encounters with alien forms of life. It is conceivable that if humans are to choose a habitable planet to explore or colonize, the planet may well already have its own inhabitants. As scientists, we believe this to be entirely plausible, but defer its consideration to sociologists, ethicists, and historians as well as diplomats and politicians. As such, the panel recommends the establishment of a special committee whose purpose is to draft an international protocol for handling a potential encounter with alien life. We cannot speculate on the nature or sophistication of alien life, but believe an established protocol would mitigate unwanted eventualities.

Hopefully, the present report has sufficiently explained why the panel feels it necessary to 1) continue funding the methods, techniques, and processes currently being taken by NASA's Exoplanet Exploration program, 2) ramp up investment in researching fusion energy with separate funds earmarked for space exploration purposes, and 3) form a committee of experts in social sciences to establish a protocol for engaging with alien life forms indigenous to an exoplanet that humans may find appealing for habitation or resource extraction. We believe these measures constitute a sufficient safeguard against future stressors on the human race.

Sincerely,

APAM Blue Panel

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Figure 1: A detailed breakdown of Exoplanet discoveries over time by method.
Blue=Radial Velocity
Green = Transit Photometry
Yellow = Timing
Red = Direct Imaging
Orange = Microlensing