## Topicality – Exploration = Colonization – 1NC

### A. Interpretation --- “space exploration” must be colonization of the Earth, Moon, Mars, or near-Earth objects

ESA 7 (The European Space Agency (“European Objectives and Interests in Space Exploration,” November 8-9, 2007.<http://esamultimedia.esa.int/docs/exploration/EuropeanThemes/European_Objectives_in_Space_Exploration.pdf>)

“Explore”: (1) travel through an unfamiliar area in order to learn about it; (2) inquire into or discuss in detail; (3) examine by touch. (Oxford English dictionary definitions) “Space exploration”: Extend access and a sustainable presence for humans in Earth-Moon-Mars space, including the Lagrangian Points and near-Earth objects.

### B. Violation --- the plan doesn’t colonize, it merely observes NEOs

### C. Voting issue ---

### 1. Limits --- they allow robotic missions, satellites, and astronomy --- this, combined with the already broad stem “development” makes the topic unmanageably large --- limits are key to preparation and clash

### 2. Ground --- human spaceflight is key to core disadvantage links and counterplan ground because it’s the most visible and contentious space activity --- core ground is key to fairness: without it, we’re structurally behind

## Exploration Must Include Human Travel

### Exploration is only human space travel --- robotic missions aren’t topical

Wright 8 (Edward, Project Manager – Teachers in Space, Former President – X-Rocket, LLC, and Programming Writer – Microsoft Corporation, Comment on “A Move Against ‘Mars Mission Funding’”, Space Politics, 6-28, <http://www.spacepolitics.com/2006/06/28/a-move-against-mars-mission-funding/>)

> No it doesn’t, the article showed democratic support for further unmanned mars missions?

### Unmanned missions are not exploration, they are merely reconnaissance. The dictionary defines exploration as “travel for purposes of discovery.” Sitting in a control room looking at pictures of Mars on a TV set is not exploration because it does not involve travel.

Calling unmanned space “exploration” and unmanned probes “spaceships” is just an attempt to co-opt the language.

Mark further confuses the issue by defined “space exploration” to mean only missions conducted by NASA, ignoring the fact that the private sector is also working on space exploration.

**Exploration means to expand human presence to space**

**Logsdon, 9 –** professor of political science at George Washington, former director of the Space Policy Institute(John, “Fifty Years of Human Spaceflight *Why Is There Still a Controversy?,”* <http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20100025875_2010028362.pdf>)

Exploration as a Compelling Rationale

Many believe that the only sustainable rationale for a government-funded program of human spaceflight is to take the lead in exploring the solar system beyond low Earth orbit.20 The MIT white paper provides an insightful definition of exploration:

Exploration is a human activity, undertaken by certain cultures at certain times for particular reasons. It has components of national interest, scientific research, and technical innovation, but is defined by none of them. We define exploration as an expansion of the realm of human experience, bringing people into new places, situations, and environments, expanding and redefining what it means to be human. What is the role of Earth in human life? Is human life fundamentally tied to the earth, or could it survive without the planet?

Human presence, and its attendant risk, turns a spaceflight into a story that is compelling to large numbers of people. Exploration also has a moral dimension because it is in effect a cultural conversation on the nature and meaning of human life. Exploration by this definition can only be accomplished by direct human presence and may be deemed worthy of the risk of human life.21

In the wake of the 2003 *Columbia* accident that took the lives of seven astronauts and the report of the Columbia Accident Investigation Board that criticized the absence of a compelling mission for human spaceflight as “a failure of national leadership,”22 the United States, in January 2004, adopted a new policy to guide its human spaceflight activities. The policy directed NASA to “implement a sustained and affordable human and robotic program to explore the solar system and beyond” and to “extend human presence across the solar system, starting with a human return to the Moon by the year 2020, in preparation for human exploration of Mars and other destinations.”23 This policy seems totally consistent with the definition of exploration provided in the MIT white paper. The issue is whether such a policy and its implementation, focusing on human exploration beyond Earth orbit, can provide an adequate and sustainable justification for a continuing program of government-sponsored spaceflight that will make contributions that will outweigh the costs and risks involved to the “primary objectives” of national pride and prestige, and also to some of the several “secondary objectives.”

### Exploration must be oriented to expansion of human presence – this is a BROAD limit

European Commission 10 (<http://ec.europa.eu/enterprise/newsroom/cf/_getdocument.cfm?doc_id=6195>

 “Space Exploration, a new European flagship Programme”, Space Advisory Group of the European Commission, Framework Programme, 10-10)

In this document, the term "space exploration" refers to "the combination of robotic and human activities for the discovery of extra-terrestrial environments that will open up new frontiers for the acquisition of knowledge and peaceful expansion of humankind”3. The broad scope of this definition requires that the EU prioritise the proposed activities to be addressed in line with the potential financial envelope and technological capabilities

## Limits – 2NC

### There’s an almost unlimited range of passive observation projects

NRC 3 (National Research Council Committee on Exploration of the Seas, Exploration of the seas: voyage into the unknown, Google Books, By National Research Council (U.S.). Committee on Exploration of the Seas)

 The division produces 60-70 reports per year. These reports are unique, authoritative expert evaluations. Each report is produced by a committee of experts selected by the Academy to address a particular statement of task and is subject to a rigorous, independent peer review. The experts who volunteer their time participating on study committees are vetted to make sure that the committee has the range of expertise needed to address the task, that they have a balance of perspectives, and to identify and eliminate members with conflicts of interest. All reports undergo a rigorous, independent peer review to assure that the statement of task has been addressed, that conclusions are adequately supported, and that all important issues raised by the reviewers are addressed. Thus, while the reports represent views of the committee, they also are endorsed by the Academy.

 As defined by the President's Panel on Ocean Exploration (National Oceanic and Atmospheric Administration, 2000), exploration is discovery through disciplined, diverse observations and the recording of findings. Ocean exploration has included rigorous, systematic observation and docu- mentation of the biological, chemical, physical, geological, and archaeo- logical aspects of the ocean in the three dimensions of space and in time. This definition of exploration is much broader than the definition one would find, for example, within the context for the extractive industries, where exploration is a search for hydrocarbon or mineral deposits.

### Best limits define space exploration as human travel on a craft

Corking 6 (2-10, <http://www.ecademy.com/module.php?mod=club&t=401626>, Founder and Principal Corking Project Corking Project Limited is an independent project management business. We deliver excellence in IT and robotic system integration for ambitious clients, including manufacturers and distributors)

 By the way - we haven't had a "what is exploration?" thread yet either. I have quietly been defining it as exploration by travelling on a spacecraft. I personally have not been using the wider definition of exploration with telescopes, space telescopes or radio telescopes.

## Predictability – 2NC

### Including telescopes both destroys limits and violates common understanding

### Cornelius 5

Space Policy 21 (2005) 41–48

 Craig Cornelius is a Managing Director at Hudson Clean Energy Partners, specializing in solar energy investments. He joined Hudson in January 2008 as a Principal, and serves on the Board of Directors of Calisolar, Inc. and SoloPower, Inc. Prior to Hudson, Mr. Cornelius was Program Manager at the U.S. Department of Energy (“DOE”), in charge of the Solar Energy Technologies Program, where he led the "Solar America Initiative" and secured a 240% increase in annual program funding over his tenure. In this role, Mr. Cornelius led due diligence on hundreds of companies in the solar photovoltaic and solar thermal industries leading to the deployment of over $500 Million in Federal grant funding and nearly $2 Billion in Federal loans to private companies. Earlier in his tenure at DOE, Mr. Cornelius directed strategic reviews of the DOE's 11 Energy Efficiency and Renewable Energy programs. Previously, Mr. Cornelius served as a manager of programs at the U.S. National Aeronautics and Space Administration (NASA) that included R&D in solar technology for space applications. He also served terms at the Geoinformatics and Space Technology Development Agency of Thailand, the U.S. National Academies of Science and Wexler & Walker Public Policy Associates. Mr. Cornelius holds a BA from Princeton University, and an MA in Science, Technology, and Public Policy from the George Washington University. He was a Henry Luce Foundation Scholar and received the DOE's Special Service Award for his work in creating the Solar America Initiative.

 Observations of organisms that thrive in extreme environments on Earth, and geological samples that show that these kinds of organisms may have substantially affected Earth’s geochemistry throughout its history, have also spurred interest in the possibility that spacecraft orbiting Earth could detect evidence of life on planets orbiting other stars. Having detected the presence of more than 120 planets orbiting other stars through changes in the magnitude and wavelength of stellar radiation, astronomers are now developing techniques that would permit them directly to observe the atmospheres and surfaces of Earth-sized extrasolar planets if they exist.20 The Vision identifies a series of near-term infrared and interferometer telescopes as precursors to a mission slated for the next decade, Terrestrial Planet Finder, that would observe the spectral signatures of extrasolar planets and possibly the presence of atmospheric or surface chemistry that could only be created by life. By including telescopes that may provide this evidence in the plans of the Vision, NASA has made an interesting choice to suggest a much broader definition of exploration than the transportation-oriented one that may be more familiar to the public.

## A2: Exploration Can Be Robotic

### Even if “exploration” can include robots, it must also have a human component

Ehrenfreud 10 (P., Space Policy Institute – George Washington University, et al., “Cross-Cultural Management Supporting Global Space Exploration”, [Acta Astronautica](http://www.sciencedirect.com/science/journal/00945765), 66(1-2), January-February, p. 245)

1 The European Space Agency ESA defines exploration as the ``travel through [and to] an unfamiliar area in order to learn about it'' and space exploration as ``extending access and a sustainable presence for humans in the Earth–Moon–Mars space, including the Lagrangian points and near-Earth objects'' [1]. In this paper we adopt this definition of space exploration to explore robotically and later with humans neighboring planets and small bodies of our solar system.

## Aff – Exploration Includes Telescopes

### “Exploration” includes astronomy

Lester 9 (Daniel F., Professor of Astronomy – University of Texas, and Michael Robinson, Professor of History – Hillyer College, “Visions of Exploration”, Space Policy, 25(4), November, p. 242)

What to do? There are few easy answers. However, the history of US exploration offers insight about places we can start. First, we should accept that ‘‘exploration’’ is a multivalent term, with many meanings, some of which are contradictory, and all of which have historical precedent. For too long we have looked at the history of exploration selectively, seeking to ﬁnd the antecedents which justify our own vision of exploration: as science, as human adventure, as geopolitical statement. This is a deﬁnitional fight which cannot be won. Space policy must acknowledge the multiple visions for space exploration, developing a clear-eyed metric of value which avoids the vagaries of lofty ‘‘exploration-speak’’. If the merits of human exploration of the Moon and Mars are primarily symbolic and geopolitical, what are these goals worth in terms of federal funding? What are costs and benefits of missions developed to express ‘‘soft power’’ vs. science? Finally, which goals or combination of goals offers the best chance of longterm buy-in by the taxpayer? While historical precedent defines exploration in terms of human explorers who travel to new destinations, that definition is woefully obsolete with regard to discovery in an era in which teleoperation offers virtual presence for explorers who remain on the surface of the Earth. As has been pointed out by many authors, ‘‘robots’’ have come to be less personal assistants who follow us dutifully, and more expendable extensions of our senses. In this respect, science can be viewed as arguably the most important frontier for humankind, and whether it is done by humans in situ or by humans remotely is no longer a particularly relevant distinction.

### Space exploration is inclusive of ground based observatories

MacDonald, 10 – a research scientist at Carnegie Mellon University (Andrew, 09/03/10, CMU, “A Brief Note on the Economic History of Space Exploration in America,” http://www.cmu.edu/silicon-valley/files/pdfs/macdonald-alex/brief-history-space-explore.pdf)

For hundreds of years prior to the Space Age, we explored space through the telescopes of ground-based astronomical observatories. If we consider discoveries made through observations by robotic spacecraft to be space exploration, then we should consider discoveries made through ground-based astronomical observatories to be space exploration as well. In both cases the experience of the human observer is fundamentally the same – that of having vision extended into space through advanced technology. By using a consistent metric to compare the cost of that technology, whether spacecraft or telescope, we can examine the economic history of space exploration in America as a continuum extending from the mid-19th century to the present day and identity long-run trends in funding. Two significant observations can be drawn from the calculations above. First, even before the mid-twentieth century, space exploration projects of comparative relative magnitude to small-to- mid-sized robotic spacecraft were relatively common. Second, for most of its history, space exploration in America has been principally funded by private sources. The re-emergence of this trend, in both astronomy and space exploration more generally, may be robust and long-lasting. Plans for the development of space exploration infrastructure should consider that economically.

## Aff – Predictability

### Limiting “exploration” to only human travel is outdated

Lester 9 (Daniel F., Professor of Astronomy – University of Texas, and Michael Robinson, Professor of History – Hillyer College, “Visions of Exploration”, Space Policy, 25(4), November, p. 236)

The word ‘‘exploration’’ threads its way through every discussion of human space ﬂight and often headlines national policy statements about the US space agency. Yet this concept, so rooted in our culture, remains remarkably ill-defined. In this paper, we examine various presumptions implicit in the term and its ramifications for federally supported space endeavors. We argue that historical examples of exploration, widely used by policy makers, often make poor models for contemporary space travel. In particular, historical precedents of exploration set up a land-biased view of discovery, a restriction which impedes full expression of the Vision for Space Exploration and its possible scientific returns. These same precedents also set up a view of discovery that is biased toward in situ human presence, a view that modern technology is rendering increasingly absurd.