Summary

Citizens' Space Agenda

WHO WE ARE:

- Private U.S. citizens who advocate at our own expense for a bold and well-reasoned space agenda worthy of the U.S.

NON-PROFIT SUPPORTING ORGANIZATIONS:

- A project of the Alliance for Space Development whose membership includes:
  - National Space Society
  - Space Frontier Foundation
  - Lifeboat Foundation
  - Mars Foundation
  - Mars Society
  - Moon Society
  - Students for the Exploration and Development of Space
  - Students on Capitol Hill
  - Space Development Foundation
  - Space Development Steering Committee
  - Space for Humanity
  - Space Renaissance USA
  - Space Tourism Society
  - Tea Party in Space
  - Waypaver Foundation

OUR 2018 ISSUES

Citizens' Space Agenda

1. Support commercial space stations in Low Earth Orbit (LEO), with NASA assisting with development and serving as an early customer

2. Enable cislunar development through a series of programs based on creating markets for cislunar activities

3. Support planetary defense by moving NEOCam forward in fiscal year 2019

Support Commercial LEO Stations

- **BACKGROUND:** With the International Space Station (ISS), LEO has emerged as a place to do world class science and commercial development
  - Companies are developing commercial space stations which, if history is a guide, could provide the LEO services NASA needs at much lower cost and catalyze an explosion of R&D in LEO
  - ISS research suggests more crew and facilities than ISS can provide
- **NASA's budget request for FY19**: The administration proposed $150 M in FY19 for LEO Commercial Development, which could help develop commercial stations
- **Our Goal:** The time is now to begin using ISS to enable commercial space stations to be in orbit not later than 2025. The focus should be on enabling commercial stations to support all important national activities

Support Commercial LEO Stations

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- **Fully fund the proposed $150M LEO Commercial Development –** To be split between:
  - Public/private partnerships to develop commercial space stations
  - Creating new demand for commercial LEO activities

- **Develop a detailed plan –** Direct NASA to develop an executable plan to support development of commercial stations. This should:
  - Ensure that the U.S. will continuously maintain human presence in LEO
  - Prioritize NASA LEO activities to support the creation, development, deployment, and operation of commercial space stations. *Ensure that at least two ISS ports are available for commercial developers to dock modules, with three or more preferred*
  - Require that NASA avoid competing with the private sector by discontinuing ISS services that can be effectively replaced by commercial platforms
  - Evolve NASA LEO station activities and the ISS National Laboratory to become substantial customers for commercial stations
  - Commit to extend ISS commercial cargo and crew transportation programs to supply part of the transportation support needed by commercial stations that host U.S. government activities

- **REQUEST**
  - **Support 2019 funding of at least $150M to support commercial space stations**
  - **Support legislative language to direct NASA to develop an executable plan to support commercial space stations**

Why *Cislunar Development* is Critically Important

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- **The Time is Now:** On December 11, 2017, the President signed Space Policy Directive 1, calling for the U.S. to "**lead the return of humans to the Moon for long-term exploration and utilization**" while working with "**commercial and international partners**"

- **Cislunar Development:**
  - Creating conditions for economic growth between the Earth and Moon including Earth orbits, the lunar surface and lunar orbits, and Earth-Moon Lagrange points to produce and trade goods and services using resources from the Earth, Moon, asteroids, and space

- **What is needed for effective Cislunar Development?**
  - Public-private partnerships to develop, demonstrate, and deploy infrastructure such as re-usable lunar landers, robots to characterize lunar ice and minerals, and enable resource processing
  - Purchase data on lunar resources (water, etc.) gathered by private companies
  - Setting a policy that NASA purchase commercially provided commodities, infrastructure, and services (water, electrical power, navigation, etc.) at various locations in cislunar space

- **Cislunar Development supports the United States' National Strategic Position**
  - *Economic Growth* – new companies are actively investing in lunar development, and the industries that come out of lunar development could be worth billions
  - *National Prestige* – being a leader in Cislunar Development will improve the US' prestige and will also inspire US citizens
  - *Scientific Progress* – there could be a substantial expansion of scientific and technological discoveries resulting from lunar development

How *Cislunar Development* is Done is Critically Important

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Will Not Enable Development

NASA's Next STEP-2 FLEX Lander

- Does not build on CLPS program
- Produces a single, sole-sourced lander
- Uses sole-source cost-plus contract that is not market/commercial friendly

- **Request – Congress should direct NASA to change FLEX/Advanced Cislunar and Surface Capabilities (ACSC) line item to:**
  - **Require ACSC to be a commercial program similar to CLPS and COTS (Commercial Orbital Transportation Services)**
  - **Provide the requested $116M for ACSC only if the program is modified to build on CLPS and lead to the development of a commercial lunar lander industry**

Will Enable Development

NASA CLPS (Commercial Lunar Payload Services) and Lunar Discovery

- Builds on the success of pre-existing programs (Lunar CATALYST)
- Focused on building a marketplace with multiple providers
- Contract mechanisms are competitive and market/commercial oriented
- Congress has liked this approach, as it has noted in Appropriations report language

Request - Support in the FY 2019 NASA Budget Request the following:

- **$218M for "Lunar Discovery" which includes CLPS and work to ensure that the program funds robot probes to find lunar water using OTAs, PPPs, Space Act Agreements as the contracting mechanisms**

Why is Planetary Defense Important?

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- In 2013 an asteroid struck near Chelyabinsk, Russia damaging buildings, collapsing a factory roof, shattering windows, and sending hundreds of people to the hospital
- About a million asteroids are larger than the Chelyabinsk object (~60 ft) cross Earth's orbit. If we do nothing, roughly 20,000 of these objects are expected to eventually hit Earth
- Potential effects range from city or regional devastation to mass extinction
- The next major impact could be decades in the future or just a few weeks from now
- Humanity has the technical capacity to discover and track any object that would cause significant damage on Earth for modest cost
- *A simple truth:* There will be no space development or settlement if our civilization lies in ruin due to an unanticipated impact

Why is JPL NEOCam the next critical step in protecting our planet?

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- Detection of a potentially hazard is the essential first step in planetary defense

- Current NASA and international efforts to find dangerous Near Earth Objects (NEOs) using only ground-based instruments have inherent limitations:
  - Cannot see in direction of Sun, near the Moon, during daylight, or through clouds
  - The best frequency for detection (infra-red) is absorbed by the atmosphere
- An excellent solution is JPL's NEOCam space-based infra-red 0.5 meter telescope
  - Rated #3 of 28 proposals during the recent Discovery mission selection
  - JPL NEOCam will be located at the Earth-Sun L1 point, allowing it to detect football-field sized objects. near Earth, including potential impactors
  - Total procurement costs, including launch, is $568M spread over six years
- Objective is to find 2/3 of all objects larger than 140 meters in five years
  - Goal is to discover >90% of 140 meter and larger asteroids within 10 years

Request: Support appropriation of $60M in fiscal year 2019 to move NEOCam forward into Phase B, enabling it to be launched at low cost in 2024 together with the approved Interstellar Mapping and Acceleration Probe (IMAP) mission

- **House current number is $22M**
- **No funding in current Senate authorization**