

What if NASA was going to change the **universe**... and the **world**?

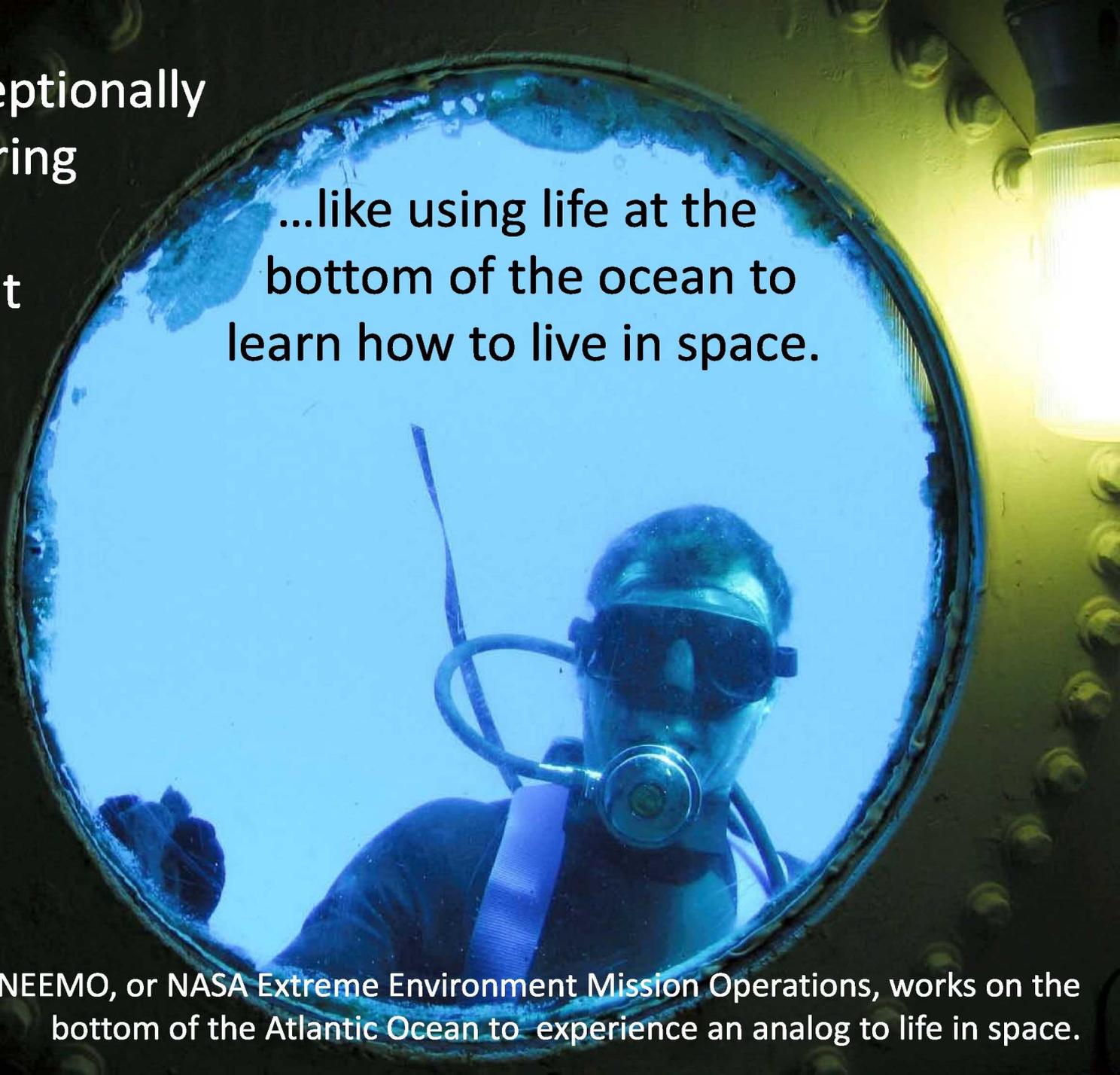


Space Life Sciences Social Innovation

NASA is exceptionally good at figuring out how to solve difficult problems with a very limited set of tools...

...like using life at the bottom of the ocean to learn how to live in space.

*NEEMO, or NASA Extreme Environment Mission Operations, works on the bottom of the Atlantic Ocean to experience an analog to life in space.



Sometimes really big problems come up:

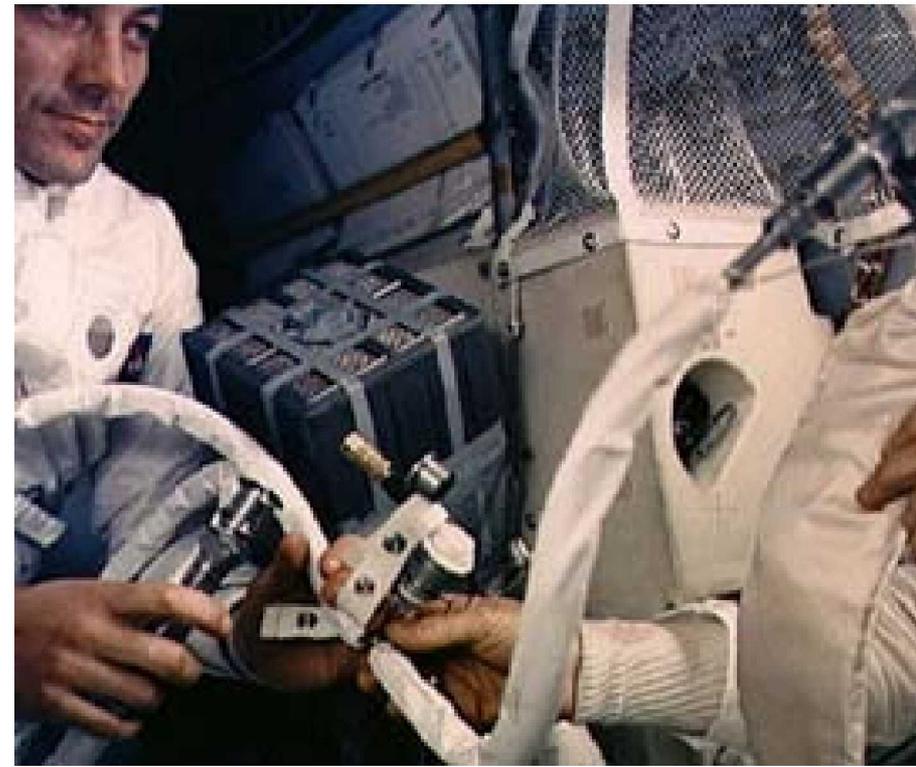


“We've got to find a way to make this [*square CSM LiOH canister*] fit into the hole for this [*round LEM canister*]...using nothing but that.” (*Apollo 13*, Universal Pictures)

...and we make it happen,
with the kind of problem-solving NASA is famous for.



in mission control



crew on-orbit

But we aren't the only ones solving tough problems.

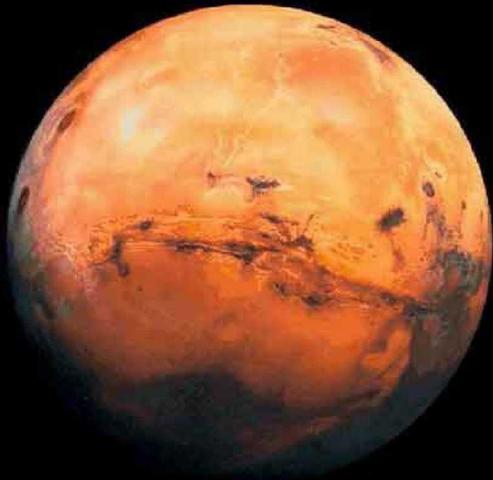


*** Schwab Foundation's leading social entrepreneurs**

*** Pneumonia counter photos courtesy of Philips' Philanthropy by Design**



What if the problems
we are thinking about
for *there*...



...weren't that different from
some of the problems humanity
is thinking about *here*?

Humanity's top ten problems in the next 50 years:

1. Energy
2. Water
3. Food
4. Environment
5. Poverty
6. Terrorism and war
7. Disease
8. Education
9. Democracy
10. Population



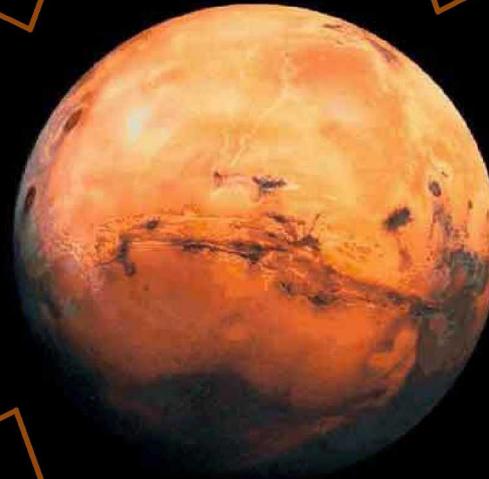


**(So what does this have to do with
human spaceflight?)**

Houston, we
have a CO₂ problem!
(The atmosphere is
~95% CO₂.)

We have no
power except what
we bring with us.

Sustainability
matters a lot – we
have to re-use
everything.



?

*(insert your
greatest
challenge here)*

We have an up
to 40 minute
communication
delay with home.

Almost all
the water on the
planet is locked in the
cryosphere.

A photograph of Earth from space, showing the blue and white atmosphere and clouds. The Moon is visible in the dark sky above the horizon.

NASA's mission is clear:

To **understand and protect** our home planet,
To **explore** the universe and search for life,
To **inspire** the next generation of explorers...
as only NASA can.



National Aeronautics and Space Act

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general welfare of the United States requires that the unique competence of the National Aeronautics and Space Administration in science and engineering systems **be directed to assisting in bioengineering research, development, and demonstration programs designed to alleviate and minimize the effects of disability.**

Science and
Technology Priorities
for FY11 Budget

09



... their budget
submissions how they will address:

- ... taking advantage of today's **open innovation** model
- ... pursuing **transformational solutions** to the Nation's **practical challenges**
- ... explaining how federal science and technology investments contribute to **increased economic productivity and progress**, new energy technology, **improved health outcomes**, and other goals



**(Okay, I get it, but what could
we really do?)**



**Innovation often occurs
at the margins of disciplines,
at the edge of what we do.**



Lab-in-a-Backpack

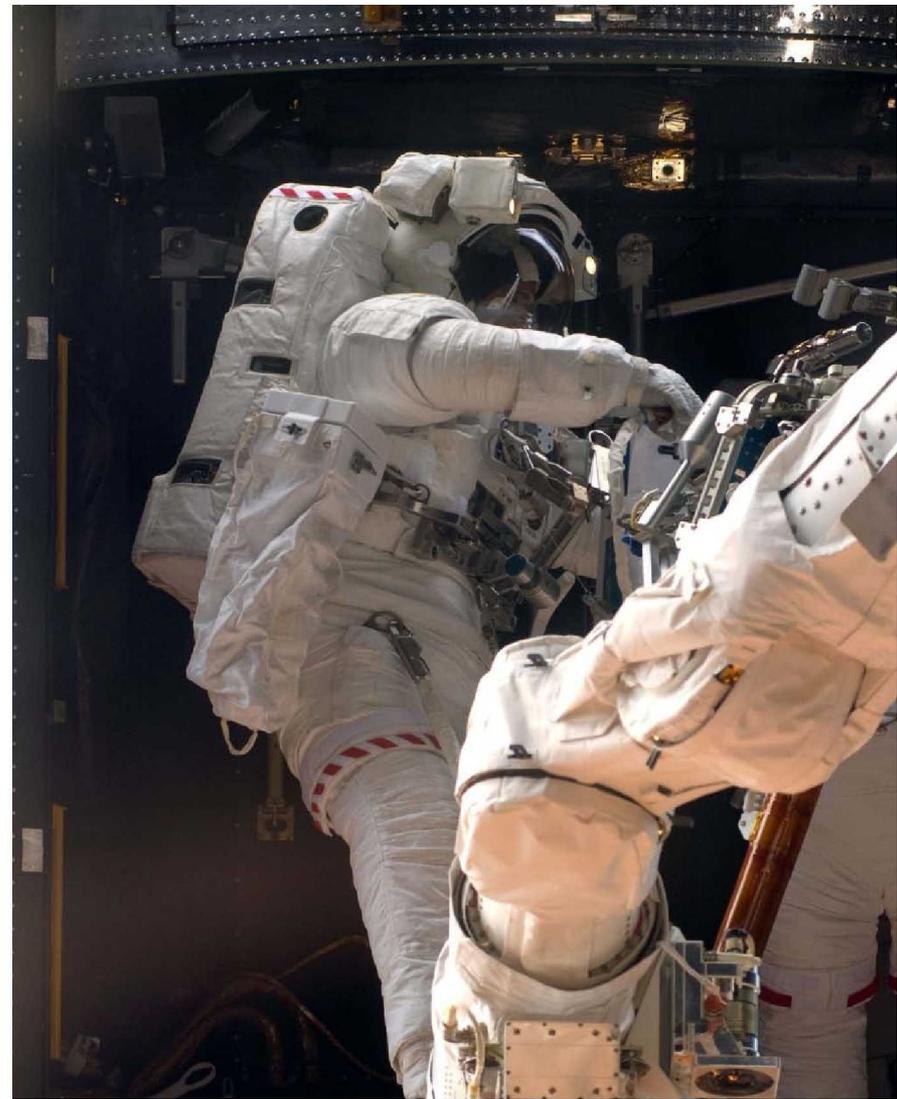
Rice Beyond
Traditional Borders
Initiative,
field testing in
Honduras



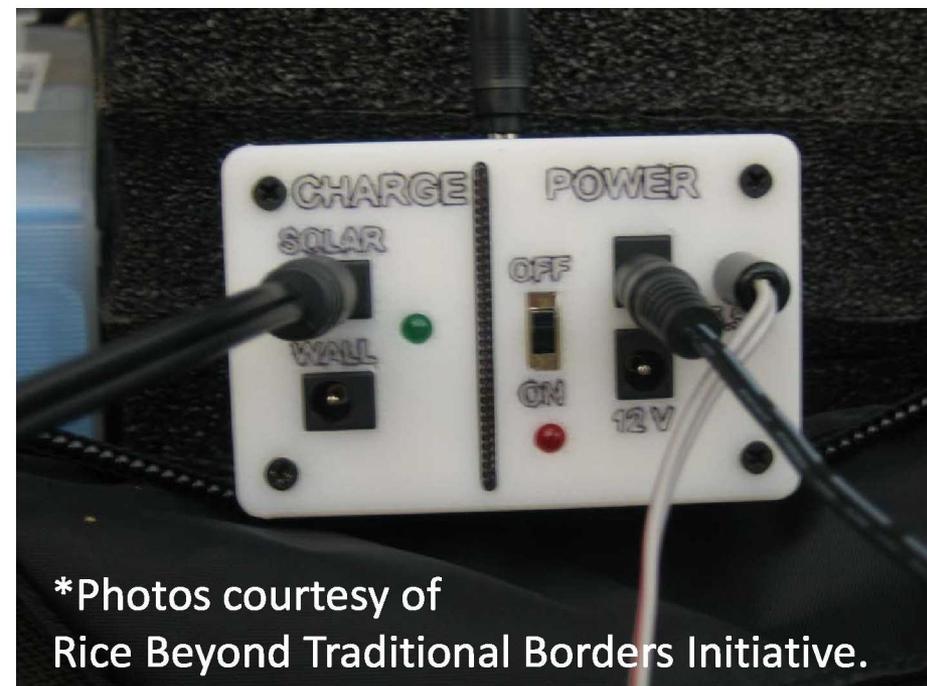
RICE



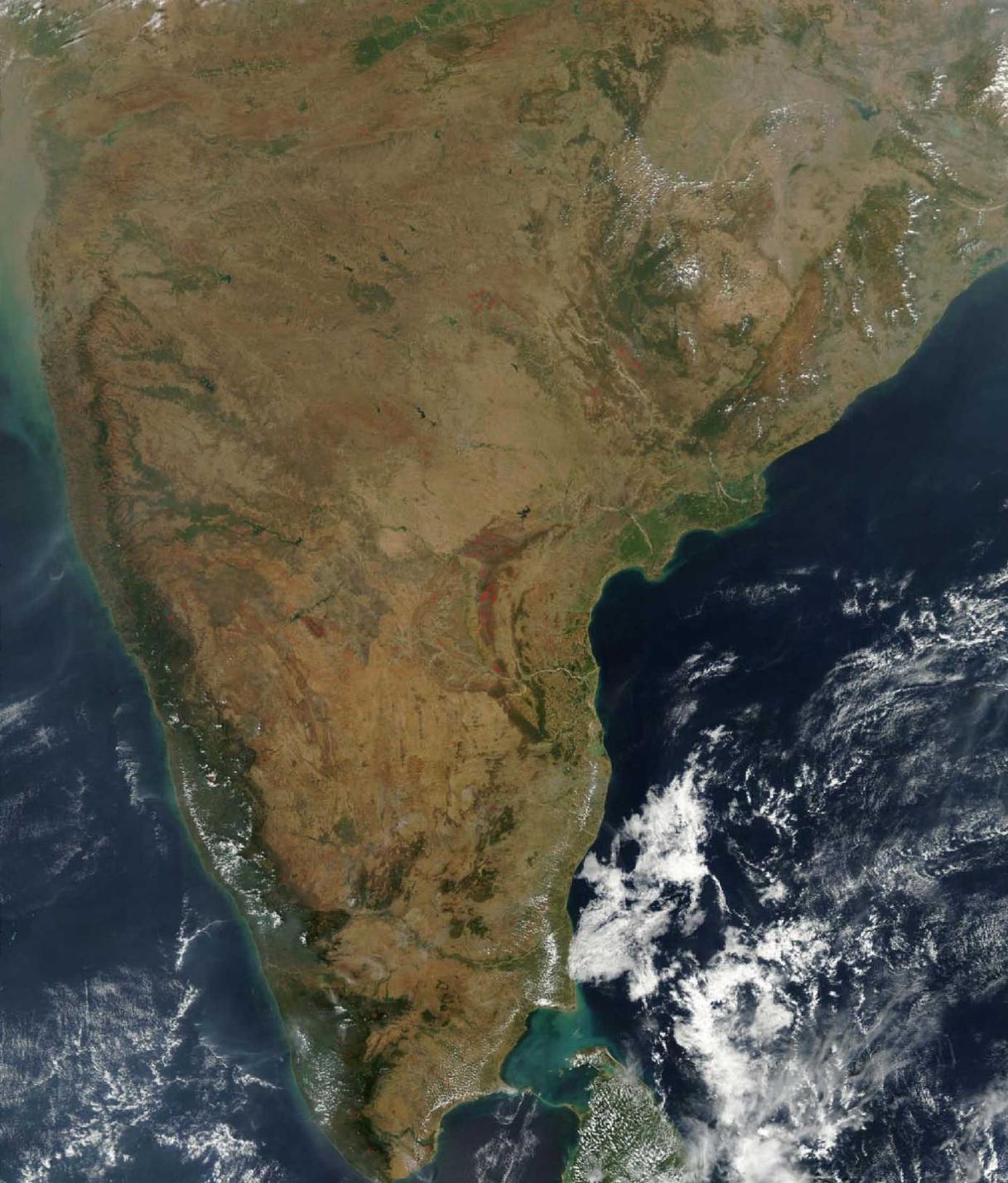
*Photo courtesy of
Rice Beyond Traditional Borders Initiative.



Going out into rural situations – or into space – mass is limited, volume is limited, power is limited, everything needs to be multi-use.



*Photos courtesy of Rice Beyond Traditional Borders Initiative.



Healthpoints

Ashoka Foundation,
Naandi Foundation,
and Healthpoint
Services LLC,
Pilot project in India



In rural locations with no reliable infrastructure, supplies and trained personnel are limited; providing doctors to every location isn't practical.



*Photos courtesy of Ashoka Foundation.

How these teams are managing healthcare where there are no doctors isn't that different than how we handle it for spaceflight.



A silhouette of a space shuttle launch complex, including the orbiter, external tank, and solid rocket boosters, mounted on the Mobile Launcher Platform and being moved by the crawler-transporter. The scene is set against a dramatic sunset sky with orange and yellow clouds. The sun is visible in the lower left corner, partially obscured by the launch structure.

**NASA is
uniquely
positioned for
exploration
and for social
change...**



... because we specialize in doing the impossible.

What if what we are doing
has far bigger potential
impact than most of us
have imagined?



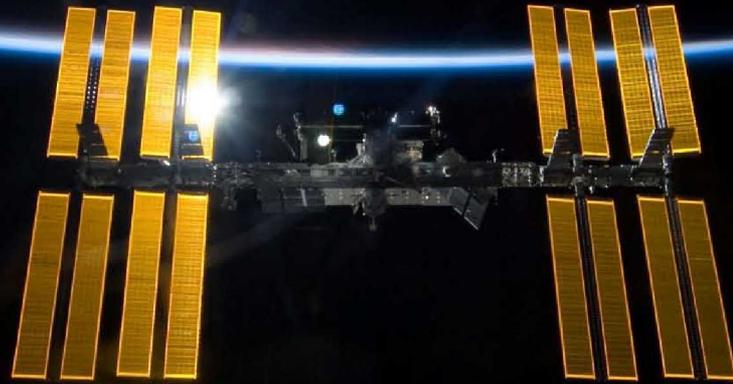
What if NASA could partner in solving the biggest “*unsolvable problems*” on earth?



What if the solution to
your biggest challenge is
something *they* have been
doing for centuries?



"As we enjoy great advantages from the inventions of others, we should be glad of an opportunity to serve others by any invention of ours; and this we should do freely and generously."



Benjamin Franklin

