



## **Thwarting the Threat of Earth-Colliding Asteroids: Apollo Astronaut Details Action Plan**

*By Leonard David*

There is one thing for certain when it comes to space – there is an asteroid loitering out there with Earth's name on it. While a civilization-smashing impact is a low probability, it is not zero.

But there are other trouble-makers out there too. They are the smaller asteroids, in far greater number that could wreak havoc on our world, but in a more localized way.

What is needed is an international protocol – “mission rules” – that deal with asteroids that are menacing to Earth, a plan that calls upon nations around the globe to consider and embrace steps that can help mitigate the destructive nature stemming from an asteroid striking our planet.

That's the view from Russell L. “Rusty” Schweickart, a former NASA Apollo astronaut speaking at the SWF-sponsored Space Security Lunch Series on June 15, held at the University of Colorado, Boulder.

The objective of the monthly lunch series is to have experts discuss issues related to the Foundation's vision: Humanity will utilize space in ways that are secure, sustainable and peaceful, ensuring access, benefit and opportunity for all.

### **Crazy cosmic gardener**

Schweickart's talk drew from his chairman position of the Association of Space Explorers' Committee on Near Earth Objects and as Chairman of the B612 Foundation, dedicated to detecting, tracking and deflecting near Earth objects (NEOs).

Coming to grips with the NEO challenge, Schweickart emphasized, is more a matter of humanity's readiness not to be dinosaurs – thought by

### **News Bits**

#### **Secure World Foundation receives Observer Status at the United Nations Committee on the Peaceful Uses of Outer Space**

(details in next issue of newsletter)

**New [Secure World Foundation website](#) goes live on June 23, 2008.**

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#### **NASA Authorization Bill/Space Traffic Management**

The bill directs NASA to initiate discussions with foreign nations on “space traffic management.”

**Text of the Committee Report to Accompany the National Aeronautics and Space Administration Authorization Act, [H.R. 6063](#)**

#### **CBO [cost estimate](#) of the NASA Authorization Bill**

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#### **Russian and European space agencies sign cooperation agreement**

##### **Highlights:**

- Ensure compatibility and integration of GLONASS and Galileo

- For remote sensing, principles were agreed to exchange data and results of satellite observations for various tasks.

- Expansion and improvement of the legal foundations of Russian-European cooperation in space exploration

##### **And:**

In Paris, June 24, 2008, during the third meeting of the Steering Board of Russia-EU Dialogue on Cooperation in Space

many scientists to have been the victims of a huge asteroid impact some 65 million years ago. And that's why we on Earth, he added, are faced with a key question: "To be...or not to be?"

Indeed, over billions of years, the Tree of Life here on Earth has been whacked time and time again by what Schweickart labeled as "the crazy cosmic gardener."

"The good news is that we can do something about this," the former astronaut explained. "The marriage of we human beings and the machines that we've created are now at a level of capability which enables us to fire the crazy cosmic gardener. We can stop this process from occurring again."

### Identifying what's out there

Schweickart outlined a three-part plan of action: Earth warning; develop a proven asteroid deflection capability; and preparing the international community to make decisions to protect life on Earth from such an event.

One deflection technology spotlighted by Schweickart is a "Gravity Tractor" that uses the gravitational attraction between a spacecraft and an asteroid to alter the object's course from a deadly trajectory that could intersect with that of Earth.

Still, there is the issue of having an asteroid miss the Earth, only to come back and hit the Earth years later due to "small keyhole regions".

These are regions, Schweickart noted, behind and ahead of our planet that can reset an asteroid's Earth-miss trajectory to come back and haunt our world another day. That means a deflection campaign, or series of decisions across a limited amount of time that can precisely alter or trim the deflection so that an asteroid goes between keyholes, he said.

### Briefing the global stakeholders

Working with the Association of Space Explorers and the talents of the B612 Foundation – and supported in part by the Secure World Foundation – the former astronaut has organized a series of workshops on the NEO threat, geared to creating a protocol for submission to the United Nations for its deliberation. These are to be spelled out in a mission rules document for protecting the Earth from asteroid impacts.

Moreover, the document is to be briefed to stakeholders around the globe – from spacefaring nations and agencies, as well as to key decision-makers in leadership positions.

"To me, this is the great test," Schweickart concluded in his SWF-sponsored lunch talk. "The real question is...do we – as a human community – have the maturity to understand that our life together is worth more than our individual self-interest or national interest? This is the space governance issue."

For more information on the B612 Foundation, [go here](#).

For the Association of Space Explorers (ASE), [go here](#).

Agreement was signed between the Roskosmos and ESA for cooperation on six major directions of interaction:

1) Scientific cooperation on Russian Phobos-soil Mars Sample Return mission and ESA's Ekzomars Mars mission.

2) Use of communications payload on Phobos-soil to support communications mission Ekzomars.

3) Support for Phobos-soil mission, including telemetry, tracking and management using ground-based network of deep space ESA.

4) Use of the Proton-M launch vehicle for Ekzomars mission "as a possible alternative" to Ariane-5.

5) Purchase Russian radioisotope heaters for integration into Ekzomars. Due attention should be given to International Atomic Energy Agency (IAEA), applicable domestic and international safety rules regarding radioisotope sources and evaluation of radiation safety for Proton-M and Ariane-5.

6) The definition, development and testing of descent and landing systems for Ekzomars based on Russian experience.

[Details here.](#)

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