



**HONOURED:** South African astronomer Dr Peter Martinez was awarded the Yangel medal. PICTURE: MXOLISI MADELA

# Medal award to SA space scientist shows we can compete globally

## ENVIRONMENT & SCIENCE WRITER

SOUTH African astronomer Dr Peter Martinez has been honoured with a top international award, named for one of the pioneers of space science.

Martinez chaired the local organising committee of the 62nd International Astronautical Congress in Cape Town,

which ends today. He was named as one of three recipients awarded the Yangel medal.

The medal is named after the Russian rocket designer Mikhail Yangel, who worked for the Soviet Union during the Cold War era, and whose name has been immortalised in the Yangel crater on the moon,

and the Yangel asteroid or minor planet that was discovered in 1978.

The other two recipients of the award are the director-general of the European Space Agency, French rocket scientist Jean-Jacques Dordain, and Indian space scientist Madhavan Nair, the first non-US president of the International

Academy of Astronautics.

Martinez, who also chairs the SA Council of Space Affairs, which advises the Department of Trade and Industry, and helps implement local space policy, said he was taken by surprise by the unexpected honour.

"This medal shows that South African space scientists

can compete on a global level."

As part of his pioneering space work, Yangel set up a rocket propulsion centre in the Ukraine which later formed the basis of his own design bureau. Initially, the facility mass-produced, and further developed inter-continental ballistic missiles (ICBMs). It now designs and produces

satellites and rockets.

The medal is conferred by a jury of six international and six Ukrainian space science experts. The small number of previous recipients include former US space-shuttle pilot, and current Nasa head, Charles Bolden, who also attended the conference.

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## Astronautics summit pact

THIS is an edited version of part of the International Academy of Astronautics' (IAA) Summit Declaration, agreed on by the leaders of 30 space agencies around the world in November last year.

### ● Human spaceflight:

Human missions to the surface of Mars is the long-term goal of space exploration in view of the scientific interest and strategic prospects for humankind.

### ● Planetary robotic exploration:

Humanity's understanding about the origin and evolution of our solar system, and our search for signs of life within it, have expanded enormously since the dawn of the space age, through eyes of evermore capable robotic explorers. Robotic explorers must be even more sophisticated and capable, and must operate successfully in a much wider range of environments throughout the solar system if we are to answer the next set of compelling scientific questions, many of which are directed at the age-old question: "Did life arise elsewhere outside the Earth?"

### ● Climate change:

In close co-ordination with other systems (ground, sea and airborne), future space systems should support a better monitoring and mitigation of the climate evolution, but also the adaptation to its impacts.

### ● Disaster management:

Space technology plays a significant role in all phases of disaster management, but there are gaps in the existing observational platforms and early warning/forecasting methods. The IAA recommends (inter alia):

● Strengthening the existing network of Earth Observation satellites through virtual constellations, ensuring their continuity and striving to implement a better co-ordination of the observation satellites for emergency purposes.

● Encouraging Earth Observation data to become available at no cost for disaster response.

# Space is a global pursuit, say experts

## Declaration of co-operation between countries in focusing on human survival

### JOHN YELD

Environment & Science Writer

A MANNED space mission to Mars could cost as much as \$500 billion (R3.9 trillion), the 62nd International Astronautical Congress has heard.

Over the 10-year period which such a mission would probably take, this means that one thousandth of the world's entire gross global product (GGP) for the decade – estimated at \$50 trillion annually – would be spent on this single space mission only.

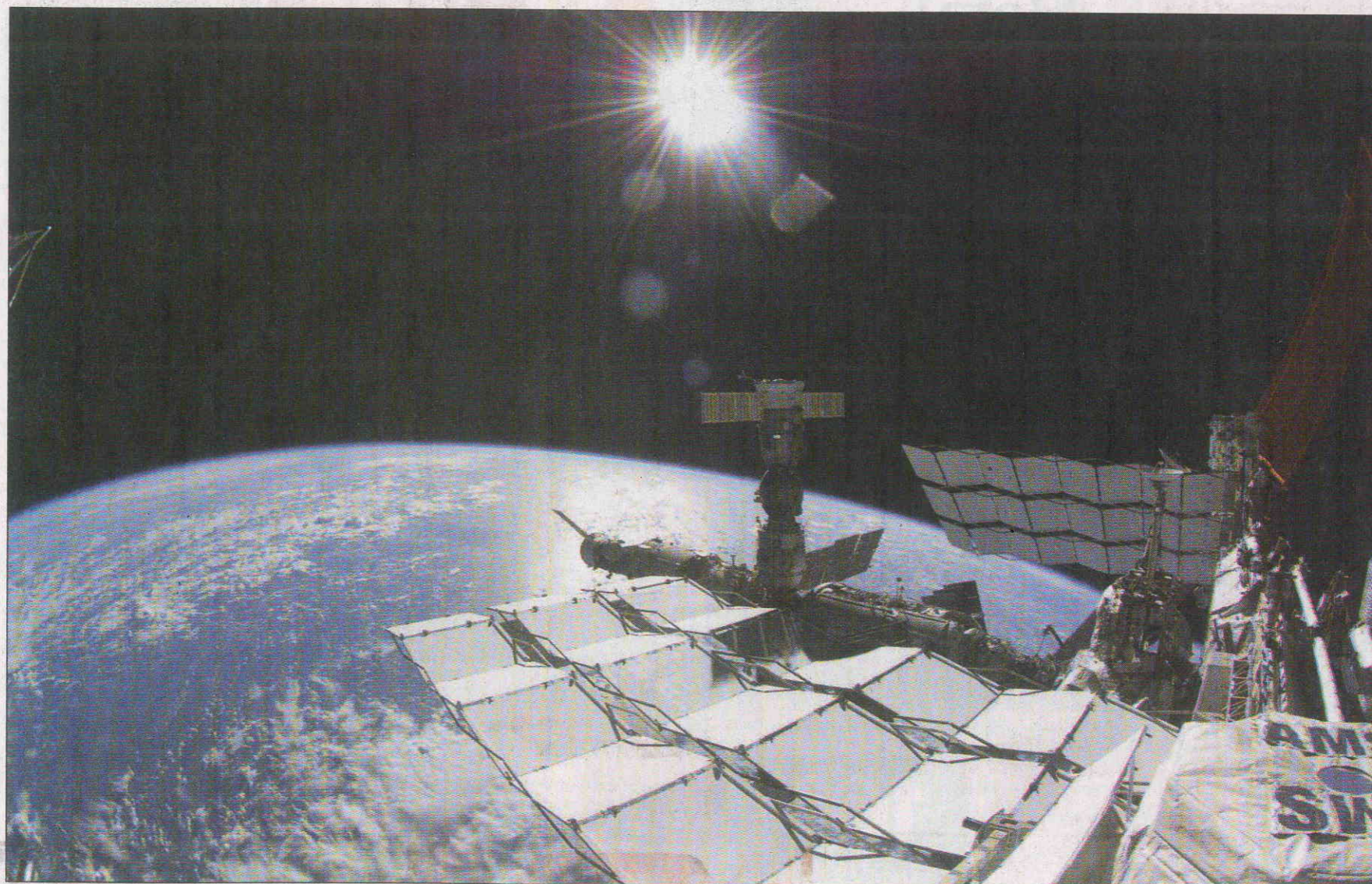
This huge number is one of the reasons why international co-operation in space science is essential, said Enrico Saggese, president of the Italian Space Agency. Pointing out that no single nation could afford such expenditure, and that costs had to be shared, he said of future space science activities: "Space is a common objective, and not an objective of a single nation."

Saggese was taking part in a panel discussion yesterday at the congress, which ends today at the Cape Town International Convention Centre.

The panel was giving feedback from the historic summit in Washington DC last November, where the heads of 30 of the world's space agencies met to celebrate the 50th anniversary of the International Academy of Astronautics (IAA).

Based on inputs from members of the academy and other space experts, they drew up a declaration for enhanced global collaboration in four particular areas of space science – human space flight, planetary robotic exploration, climate change, and disaster management.

At yesterday's discussion, IAA secretary-general and



**UNDER THE SUN:** The sun shines above the Earth's horizon, with the international space station in the foreground, in this picture taken in July by spacewalker Ron Garan during the final spacewalk, while the shuttle is docked to the station. PICTURE: COURTESY OF NASA

panel moderator Jean-Michel Contant explained that the declaration was now open for academy members to comment on which of its 30 "action items" should be prioritised.

All the panel members who spoke stressed the need for enhanced international cooperation in the field of space science.

IAA president Gopalan

Madhavan Nair said space exploration had become "extremely complex and demanding" in terms of technology, human resources and finance. A lack of funding

would hamper efforts by individual nations, and it "makes sense" to pool resources.

Marius-Ioan Piso, head of the Romanian Space Agency, said space science had changed

from its initial emphasis on military and pure science purposes, through telecommunications and GPS applications driven by commercial interests, to the present focus on

security for humankind. Such security was not military-related, but was for planetary defences from threats such as droughts and floods, cosmic threats in the form of space weather, and possible asteroid collisions, he explained.

"There are several issues that cannot be solved but in ways of global co-operation."

Ray Johnson, chief technology officer of the Lockheed Martin Corporation, said: "Space has been important, and it continues to be important, and it may become even more important."

The need for co-operation had never been greater, and there were "great opportunities" to confront the problems facing humankind.

"No nation, not even the United States, is able to go it alone in space," he said.

Responding to a delegate who suggested a manned Mars mission could be done significantly more cheaply if the crew was reduced from the suggested six, Saggese said it was important to consider what he termed "missing stones" – current unsolved problems.

These included the survival of the crew, because with current technology it would take eight months to get to Mars, and a similar time to get back. But the longest that astronauts had stayed in space until now, in the International Space Station, was just six months.

"At the moment, this amount of time (to Mars) is not compatible with survival."

Another "missing stone" was how to protect astronauts from cosmic rays once they left the protection of Earth's atmosphere, he said.



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