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The first few dishes of the Karoo Array Telescope, or MeerKAT, is a symbol of what Minister Pandor called “the alteration of the perception of Afro-pessimism that we have in Africa.” It will mean a “massive boost to human capital development,” she said.

new development are all the various sides of our program.

I’ve found a bit of money in my budget to start helping Mozambique to build a radio astronomy observatory. And we hope we’ll do the same with Zambia; we’re doing so with Ghana as well.

Inspired by Eleanor Roosevelt

21st Century: When Nigeria launched its two satellites a week or so ago, one of the ways that the press covered it was to say that Nigeria is now winning the “African space race.” But all of the South African speakers at the Cape Town

Congress have stressed international cooperation.

One project under development is the African Resources Monitoring Constellation. Dr. Malinga, who had a press conference in Johannesburg before the IAC conference started, said that the next South African satellite, Sumbandila-2, which will be South Africa’s contribution to the Constellation, would be developed. Has that been approved?

Pandor: Not yet. No, they’re still working on it, but we’ve agreed that that’s the direction we’re going. And we’ll look at what they’ve produced, their plan, and I hope by the end of this year we will have an indication what the needs are, what the timelines are, and what resources are required.

21st Century: I have to say that an inspiring thing about South Africa is the leading role of women here.

Pandor: We all draw on the U.S. We all talk about Eleanor Roosevelt and the contributions she made to the empowerment of women. We never forget that we wouldn’t have the Universal Charter of Human Rights were it not for her. A great woman. So we draw inspiration. And that’s what we would like America to go back to—to be the country that inspires us.

INTERVIEW: DR. SANDILE MALINGA

Space in South Africa: A Change in Paradigm

Dr. Sandile Malinga is the first chief executive officer of the recently established South African National Space Agency (SANSA). He is a space physicist, who earned a doctorate from Rhodes University. In 2002, he joined the University of Natal and later became the Dean’s Assistant at the University KwaZulu-Natal, responsible for student academic support programs.

In 2007, Dr. Malinga joined the leadership of the Hermanus Magnetic Observatory, now SANSA Space Science. He is a member of the South African Council for Space Affairs, and serves on numerous scientific committees. Dr. Malinga is dedicated to bringing young people into science



and technology, a commitment which he says is inspired by his three young children; and he sees his responsibility not only to his nation, but to all of Africa.

Dr. Malinga was interviewed by Marsha Freeman on, Oct. 6, during the International Astronautical Congress, in Cape Town.

21st Century: You gave a briefing for the press in Johannesburg about a week ago, prior to the Congress, in which you mentioned that you hoped to start a project next year to build an operational Earth-observation satellite; that Sumbandila was a prototype, not designed to be operational. Why have you put this forward? People would ask, wouldn’t it be cheaper and faster to just go to a foreign commercial company and buy a satellite?

Malinga: The reason we think we should build our own satellite, goes beyond what the satellite can do. We hope that through this, we will come up with new technologies. We have a very bad shortage in terms of highly skilled people in the country. So this would be one vehicle that one can use to train people in high technologies.

Further, as a country, we have challenges. We import quite a lot of high technologies from other countries. We currently have a trade deficit, in terms of high technologies, in excess of 70 billion rand (about \$9 billion) a year. And this has gone up. In the past, I think around 2005, the trade deficit in terms of high technology was around R43 billion a year, and it's gone up to 70-something. So there is something going wrong, in terms of competence in high technology; it is probably slipping.

We also see that in terms of our patent share. Around 2005 or so, it was around 0.1-0.2 percent of the global share. In 2009, it has gone down about 80 percent to .02-something. We're slowly slipping as a country, globally. So we believe that by doing this, it will contribute to addressing those challenges, which the country is trying to address. In addition, we will create the skills that are required. And the biggest thing is that the skills that are created in terms of space could help people find jobs elsewhere in other industries, car manufacturing, or mining areas, and also other industries. They could work just about anywhere. Those are related benefits that we hope to derive out of this.

Besides that, we believe that we should build our own satellite, so that we design it to meet our needs. When you build a satellite, you build it for your own needs. If we use the French satellite, which we use at the moment, it's not designed for what we want. We have our savannas here. France is in Europe. You



www.sunspace.co.za

South Africa's Sumbandila micro-satellite before its launch in September 2009, from the Baikonur Cosmodrome. Sumbandila means "lead the way" in the Venda language. Dr. Malinga stressed the importance of South Africa's building its own satellite to meet the nation's needs.

know, they have different vegetation from what we have. We need to customize our satellites, to meet our requirements, and achieve what we want. So those are the reasons why we think we should build our own satellite.

And there's the issue of national pride, as well. We can't underestimate that. That is what has propelled other nations globally to be where they are: National pride. It's as simple as that. "We got it; it's been done here." It has an immense motivational affect on your people, your young people, who will see this satellite that they have developed. It drives you on to other things. The sense of belief that we can do just about anything, and that's an advantage.

We Must All Prosper Together

21st Century: You said at various times throughout this week that your country has many challenges, and not every problem can be solved quickly. But for people to think that their children's lives will be better than theirs, that is the hope.

There was an article recently, when

Nigeria had two satellites launched, that Nigeria is winning the "African space race." But you have stressed the cooperative space projects that are under way, such as the African Resource Management Constellation (ARMC). How important is it to have a regional view and not just use your satellite to look at South Africa?

Malinga: That's very important, that we take a regional view. Especially for us, in terms of where we are in the SADC (Southern African Development Community) region. If you look at our neighboring countries, we're far ahead, in terms of space. And so it's not in our interest to just benefit ourselves. The SADC countries will prosper, or none of us will be prosperous. Then, no one would have to be monitoring borders, because people want to remain where they were born, largely, unless there is something else that pushes them to seek greener pastures.

So by stimulating the region as a whole, that creates markets for SADC, as well. If there is someone who can buy a product and can afford it, then you can sell more. So we have to look at it that way. That it's in our interest to develop the region as a whole, and when we collect satellite data, we would love to distribute it to our neighbors.

There are programs, for instance, CBERS, the China/Brazil Earth Resources Satellite.

21st Century: You had mentioned that. I had no idea South Africa was involved in that project.

Malinga: We are involved in that. We are downloading the data; it's just that right now, the satellite is not working. But we're downloading the data, and the license for it was crafted under the so-called "data democracy framework," where data are freely available. So the mandate that was given is that the data are to be distributed to neighbors for free. That's the commitment that we made.

Now we have signed another contract for CBERS 3, which will be launched next year. That is still under that framework—that we'll download the data and distribute it freely to our region. We're committed to do that, and we think it's important.

Similarly, with our satellite as well: The data should be shared. When you look at it, there is South Africa in the southern region; there's Nigeria in the West; there's Kenya in the East; and there's Algeria up north. If we were to think about this very carefully, and sort of, each be a space powerhouse in those regions, we could do more. We could cover the whole of Africa in a very meaningful way (with a satellite constellation by these four nations.)

Issues of collaboration in Africa are very interesting, and tricky, in the best of times. That's another issue.

You know, it's coincidental, but we are more or less covering all of the main regions of Africa, almost all of them through the proposed ARMC constellation. We could cover Africa very easily through our regional cooperation; South Africa would be responsible for the SADC, and assist our region as much as possible. Even then, we don't want them depending on us. We assist them to get on their feet and fly on their own. That's the intention.

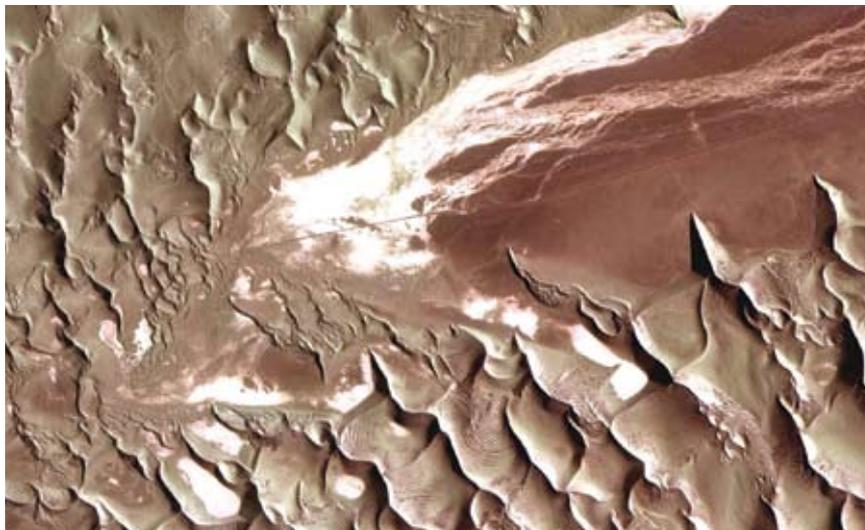
Raising the Bar

21st Century: And you had said that if other countries can't fly their own satellites, they could participate in the program, and build and operate a ground station.

One of the other things that has been mentioned, is the possibility of a launch facility. Every continent has a rocket launch facility, except Africa. And you have infrastructure at the former Overberg Test Range that existed in previous times. Is there much there at the site, or has it all been dismantled?

Malinga: It's still there. The site is still there—the bunker, and other things; the tall hangars. Everything is still there. The infrastructure is there.

21st Century: So it could be devel-



SunSpace

Sumbandila images of Sossusvlei in Namibia (above) and Cape Town, both taken in February 2010.



SunSpace

Program in the U.S.

Malinga: Do you mean, why not use this money for education, as an example? I think the point that you are raising is, where you raise the bar, you stretch people. Instead of doing the mundane, the things that they are able to do, you set a higher bar whereby they have to stretch themselves and think of things differently. That is the way to change and have that paradigm-shift, that now we're taking a jump.

You know, to some extent, our program's not of that nature. We haven't taken on a very ambitious program. I mean, building a satellite—we've done it before. The first one we built, Sumbandila, is not necessarily an operational satellite, but I don't think putting up an operational satellite is necessarily a huge jump, as in making a paradigm-shift.

By what we're doing—are we really going to change things? Probably not. But I think if we were to take even more ambitious goals and objectives, and say, "This is what we're going to do," that would probably propel us further, even faster in our development.

I think this is a good start. We can start by completely building our own satellites. And we look at this as a way

oped to launch satellites?

Malinga: Everything is still there; the telemetry systems.

21st Century: It is our view that the path to economic development is through great projects. You talked about how having a vision is important, and that nothing that is done in space can be done in a few months, but takes a long-term commitment. How do you see what you are doing in space as having an impact on the long term, such as in education? We saw the impact of the Apollo



SANSA

We need to raise the bar, to “stretch people,” Dr. Malinga said, as a way of bringing about change through education. Here, an outreach program of the South African National Space Agency, which aims to create the next generation of space pioneers.

of working with African countries. It’s a challenge in the sense that I’m talking about, more on the patriotic and African kind of vision. But when people talk—the company that builds our satellites—they’re more concerned about the money. Me, I’ll be saying to them: “Let’s impart the knowledge to the

African countries. They’ll build their own.”

Because the way I look at it, we can’t build five, ten satellites in the country, alone. So can you imagine, if each and every African country was doing so, and we use all of those—?

For me, I’ll say the skills should be created elsewhere, so there are more people who can do this, so we can have more satellites. So as a country, yes. But for a businessman, probably not!

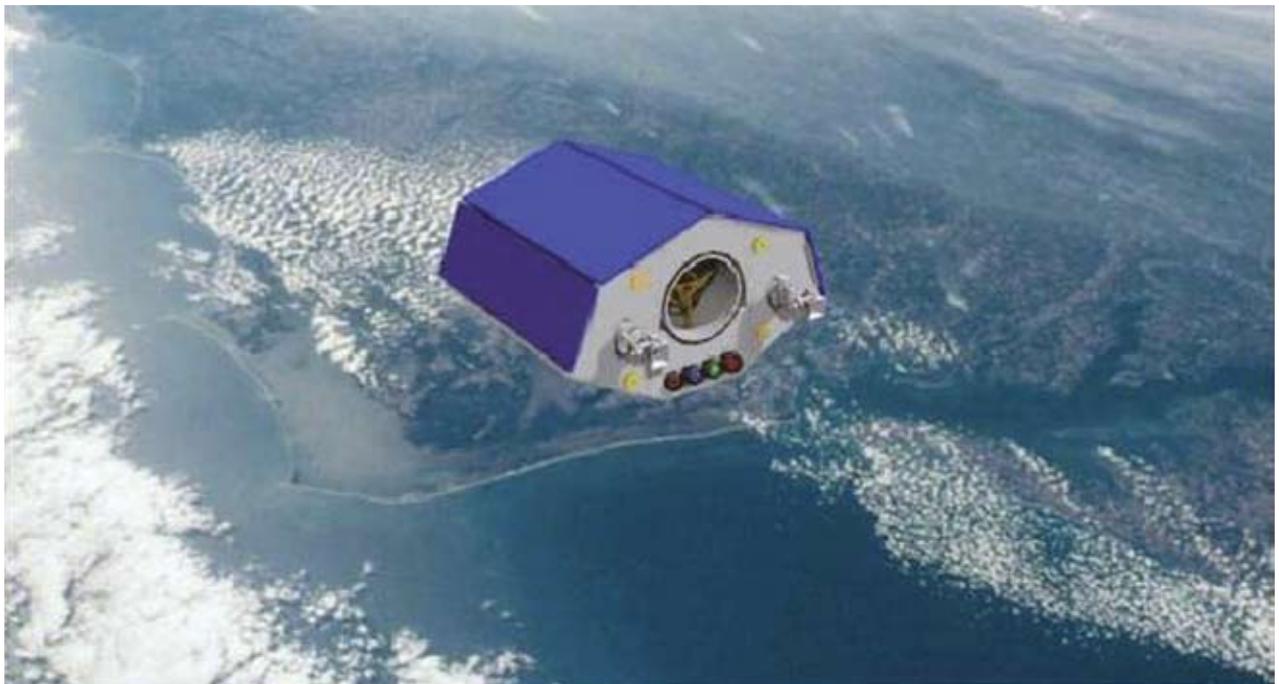
21st Century: That’s why it was important for the government to create a South African National Space Agency.

Malinga: Yes. That’s the intention. I’ll try to have more social activism, and say, “Create these capabilities elsewhere, and we’ll have more satellites, and we’ll put them up there together, so as a country, we don’t have to spend more money creating our own constellation.” The thing about one satellite is that it doesn’t as-

sist you much; it does a good job, but it is limited. If there’s a disaster, coverage is small, and the revisit time is long. You can’t, when there’s a disaster, be coming back in a couple of months to the same spot. So those are the things that are helped by a multi-satellite constellation. My model will be: Build the capacity, and people will build their own.

Inspiring Young People

21st Century: You mentioned, in terms of political stability and economic growth, it is never a benefit to any coun-



SSTL

Dr. Malinga stressed the need for collaborative space projects and a regional view of space development and resources. One of the partners is Nigeria. Here, an artist’s depiction of the NigeriaSat-2 spacecraft in orbit, and Nigerian engineers in training.

try to have poor neighbors.

Malinga: You close borders, and do other things, and spend so much money. We have a center where we keep people who come in to the country, and then deport them. We are paying a lot of money doing that. Whereas, if their economies were okay, they would stay. Home is home. Everyone wants to get home, as long as the conditions are okay. Having said that, it's a challenge, but it's very important.

21st Century: Do you think this Astronautical Congress will have an impact, especially on young people, and education?

Malinga: I think it has done a great job. We had more of our students who otherwise would not have been exposed to



initiative.wordpress.com/category/satellites/

Government representatives signing a memorandum of understanding, during the Third African Leadership Conference on Space Science and Technology for Sustainable Development, in Algiers, in December 2009. The African Resource Management Constellation involves an initial collaboration of Nigeria, South Africa, Kenya, and Algeria.

this. They came, they attended. Our professionals, also. But, I have a feeling we could have done better, on attendance. I'd expected it to be more.

us, "I can actually do this myself."

[1. See EIR, Oct. 7, 2011, for the Apollo astronauts' testimony before Congress.](#)

I think the impact will be immense, going forward. People will look back. Can you imagine the kind of impact that is made on young people? NASA Administrator Charles Bolden spoke to school kids. It's amazing what that does for a child. I go to places in schools and say, "Just remember this day." Probably this is where your space career started; when someone came and spoke to you about space.

21st Century: That's what many of the astronauts on their Congress panel said had inspired them.¹

Malinga: So it has an amazing impact, to see someone like you saying to

INTERVIEW: DR. PETER MARTINEZ

We See an African 'Astronaissance'

South African scientist Peter Martinez headed the Local Organizing Committee for the International Astronautical Congress (IAC). Dr. Martinez is the chairman of the South African Council for Space Affairs, which oversees space activities in South Africa, and he is division head for Space Science and Technology at the South African Astronomical Observatory. Dr. Martinez has made important contributions to the development of South Africa's national space policies. He holds a doctorate in astrophysics from the University of Cape Town, and contributes to international policymaking in space affairs.

At the final count, 345 African delegates, from 13 African nations, attended the Congress. A special Developing Countries Support Programme (DCSP) had been organized by the International Astronautical Federation to support the participation of delegates. Twenty of the



30 participants supported by the DCSP program were from Africa.

Dr. Martinez was interviewed by Marsha Freeman on Oct. 3, 2011 in Cape Town.

21st Century: As the head of the local committee that organized this first-ever Congress of the International Astronautical

Federation in Africa, you must be very pleased by the turnout.

Martinez: We've got about 2,800 delegates registered. We're very excited about that. I think it shows the interest by the global space community in finding out about that's happening in the African space arena, and the potentials that it holds, not only for space in Africa, but the potential for cooperation and commercial applications of space technology in Africa and the markets associated with that.

21st Century: How many African countries sent delegates to the Congress?

Martinez: There are 53 countries in Africa, and I would be surprised if all 53 are represented here; it will probably be fewer than half. But still, in terms of space development in Africa, that would be a significantly higher number than you might have attracted, had this Congress