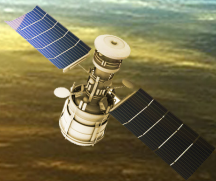


CAREERS IN

Space Science & Technology



SPACE FOR YOU



science
& technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA



SAASTA

South African Agency for Science
and Technology Advancement



sansa
SOUTH AFRICAN NATIONAL
SPACE AGENCY



Dr John Bosco Habarulema, Age: 36
Space Science Researcher at SANSA

What is your educational background?

I completed a BSc (Physics and Maths) with Education. I am a teacher by training however I decided to continue my studies and pursue a career in research. So I went on to do a BScHonors in Astrophysics and Space Science followed by an MSc and PhD in Space Physics.

What does your job entail?

Basically, I search and search and search again for new knowledge about the world around us, hence the term research. When I discover something new I generate useful information and share it with the science community through research papers and presenting at conferences around the world.

What is the most exciting aspect of your job?

I enjoy experimenting with innovative ideas and making new discoveries. Each new experiment usually generates another new idea and so the process continues. Another rewarding aspect of my job is when postgraduate students under my supervision complete their degrees.

Are there any misconceptions about your field of work?

Yes many! Firstly, you don't have to be a genius to do space science research. This field is open to anyone who is determined and willing to work hard at achieving set goals. You also don't have to travel to space to be a space scientist. Most people are not aware that the technologies they depend on daily such as cell phones, DSTv, internet, ATM machines and many more, all use space based applications.

Why did you choose a career in your field?

I chose a career in space science because I enjoy finding solutions to everyday challenges.

What advice do you have for learners considering a career in research?

We need your help to make the country and the world a better place. You are the future! If you stay focused and work hard at pursuing your goals, you will succeed.

What jobs are available to someone with your qualifications?

Any jobs that require structured problem solving skills such as lecturing and research, banking, consulting, and even management at various levels.

What is your favourite quote you live by?

There is nothing more rewarding than investing in humanity.



Betty Ntlhe, Age: 26
Satellite Operations Technician at SANSA

What is your educational background?

I matriculated at Bokgoni Technical Secondary School in Pretoria and obtained a National Diploma in Electrical Engineering at Tshwane South College. I am currently studying Electrical Engineering at the University of South Africa (UNISA).

What challenges did you face during your studies?

I have small hands which made working with large and heavy tools really challenging. I would often ask myself if this was the right career choice for me. However, with practice, hard work, and mastering the required techniques, I got better at it. Now I love it!

What inspired you into a career in engineering?

In high school I worked on my first electronics project of building a doorbell. The project involved soldering all the components of an electronics kit onto a circuit board. I felt such a sense of accomplishment when I tested the bell and it was working perfectly. This sparked my interest in electrical engineering. Engineering and technology are elements that exist in almost everything we do, and this field is full of great opportunities.

What advice would you give to someone starting out in your career?

Make sure you take part in projects in your workplace, even if they don't always relate to the work you do. This will provide you with excellent exposure to as many areas as possible. It will also help you grow and keep up with new developments within your field.

What makes you proud to be a woman in the world of engineering?

The fact that it takes hard work and courage to survive in this male-dominated industry makes me proud. I don't mind working in a "man's world" as long as I can be a woman in it!

What is your opinion about current trends in science and technology?

The industry is developing rapidly and becoming more advanced. Science and technology is what transforms societies and builds nations. South Africa needs to keep up with international trends and set new ones. We need more bright young minds working in the field of engineering.

Describe your job in three words

Never ending possibilities!



Ziyaad Isaacs, Age: 27
Systems Technician at SANSA

What does your job entail?

I help maintain and install SANSA's space monitoring instruments located in remote sites all over southern Africa. The data that is captured by these instruments is used for studying the Earth's magnetic field.

What criteria did you have to meet to get your position at SANSA?

I had to be willing to travel to remote areas, have good experience in electronics and be able to manage myself.

What is your educational background?

I have a National Diploma in Electrical Engineering and a positive attitude.

What important school subjects are required to study in your field?

Maths, Physical Science and Geography.

What was the biggest adjustment you had to make when moving from school to the working world?

Learning about how to conduct oneself in the corporate world was a big adjustment. You have to know when to be serious and when it's ok to crack a joke.

What is the biggest myth about your field of work?

That it doesn't exist! Many people are not aware that space science and technology is at the cutting edge in South Africa and that our country has a Space Agency. I always have a lot of explaining to do every time someone asks me what I do for a living.

What is the truth around the above myth?

Space science and technology is a growing product of South Africa and it is getting bigger every day.

What do you have to do in order to stand out in your field of work?

The best way to stand out in any field of work is to do it right. It is also important to continuously improve yourself to keep up with new trends.

What does a person starting out in your field have to do to climb the corporate ladder?

I would suggest you get as much experience as possible. The corporate ladder will always be missing a few steps so it's up to you to go out there and find those steps you need to succeed.



Jon Ward, Age: 34
Radar Engineer at SANSA

What is your educational background?

I obtained a BSc in Electrical Engineering and an MSc in Radar and Remote Sensing. I am currently completing an MPhil in Space Studies part time while working at SANSA.

What does your job entail?

My job entails designing, building and maintaining specialised instruments used to monitor space such as SANSA's SuperDARN digital radar located in Antarctica. When I am not working in Antarctica, I get involved in project management, supervising student projects and training new engineers. I also get involved in regular outreach and teaching programmes.

Why did you choose a career in your field?

I have always been interested in space and technology. While growing up I enjoyed watching SciFi movies and reading about the latest developments in space. Working in the space industry allows me to combine my love of electronics and programming with my fascination for space and technology.

What are the necessary skills needed for a career in your field?

Maths and Science at high school level is important. From there, you would need to study Electronics and Computers at a university or technical college. You can then go on to study advanced topics in communication and instrumentation. My advice to young learners is to focus on the fundamentals. Having a good understanding of the basics will serve you well when mastering more advanced concepts.

What is the most exciting aspect of your job?

I enjoy creating things! I find it extremely satisfying knowing that something I have created or helped to create is out there being used for the benefit of our planet.

What challenges do you face working in your field?

Access to funding and finding suitably qualified engineers to fill critical positions.

What are your future career goals?

I am very interested in the project management and business side of space missions and space applications. It would be great to be involved in the design and the organisational side of South African grown space projects.

What jobs are available to someone with your qualifications?

You can work in the communications, instrumentation, IT and programming industries at various levels, including systems engineering and project management. There are also opportunities outside the engineering sector such as patent law and within the financial sector.

What is your favourite quote you live by?

Carpe Diem - Latin for 'Seize the Day'. Essentially, be proactive and take control of your own destiny. Learn to recognise opportunity and act on it.





Dr Rendani Nndanganeni, Age: 30
Space Science Researcher at SANSA

Why did you choose this profession?

Growing up, I was always finding ways to fix broken things around the house. If the iron was broken I would open it up and try to figure out how to fix it. I enjoy finding solutions to problems and science is all about problem-solving, which is why I love it. My field of research provides a great platform for exploring unanswered scientific questions.

What is your educational background?

I matriculated at Thengwe Secondary in Limpopo, did a BSc in Computer Science and Physics at the University of Venda and recently completed my PhD in Space Physics at the North-West University.

What challenges did you face during your studies?

I did not qualify for a bursary when I matriculated, so I applied to the National Student Financial Aid Scheme (NSFAS) for a bursary that paid for half of my studies. My parents had to pay for the rest, which was challenging as I only have one working parent.

Is experience as important as formal training?

Yes, they are equally important. One gains experience through hands-on training and exposure to different areas of expertise in your field of work. While formal training provides essential skills and knowledge which help you to work independently and manage your time.

Describe a typical day in your line of work?

I spend most of my time collecting space weather data, answering emails and attending meetings. Space weather is a new research field and it is extremely interesting to uncover new results and provide important information to the aviation industry.

Why is it important to do the work you are doing?

Space weather can disrupt technology we rely on daily, such as mobile phones, the internet, navigation and communications systems aboard aircraft and even our electrical power grids. My research is helping us to understand the impact of space weather on the aviation sector.

What's been the highlight of your career to date?

Completing my PhD, publishing two articles in top international scientific journals and presenting my research at conferences around the world. Another highlight was presenting my research to the Minister of Science and Technology at the 2016 Budget Vote. She congratulated me on the work I was doing, which made me very proud.

What advice would you give to someone starting out in your career?

Strive for excellence! Be willing to learn from others and ask for help when you need it. Have a positive attitude and make things fun to ensure you enjoy your work.

Describe your job in three words:

Exciting, thought-provoking, captivating.





Thandile Vuntu, Age: 29
Educator at SANSA

What is your educational background?

I have a BSc in Chemical Science

What does your job entail?

My job entails educating learners about space science and technology through practical activities linked to the school curriculum. By showcasing how important science and technology are to our everyday lives, I hope to encourage the youth to consider pursuing a career in space science or engineering. I spend some of my time at the SANSA Science Centre developing new educational material and exciting science activities but the majority of my time is spent engaging with learners at schools or at science exhibitions.

Why did you choose a career in your field?

It is exciting and I love working with people, especially the youth! I always wanted a career where I could make a difference in the community and help others to succeed.

What are the necessary skills needed for a career in your field?

You need to be good at presenting, public speaking and knowing how to communicate about science and technology in a way that makes it interesting for your audience. Basically have good communication skills and know how to work with people of all ages.

What is the most exciting aspect of your job?

I really enjoy being able to make a difference in someone else's life. When I hear that a learner has improved their maths and science marks at school because of the work I am doing it makes me very proud.

What are your future career goals?

I hope to one day have a PhD in AstroChemistry

What advice do you have for learners considering a career in your field?

There are so many great opportunities out there - so work hard and make the most of them. Always believe yourself and never let anyone put you down. Make sure you stay focused by setting goals and having dreams which you can achieve.

Is continuing your education important in your type of career?

I feel that it is always important to continue to learn even when you have finished your formal studies. Knowledge is something that can never be taken away from you and when put into action it becomes powerful!

What kinds of jobs are available to someone with your qualifications?

There are a number of jobs available in this field such as science communication, teaching, lab technician, education officer and so many more.

What is your favourite quote you live by?

It always seems impossible until it is done.

Describe your job in 3 words:

Fun, challenging and interesting

"Challenging and interesting"





Kate Niemantinga, Age: 38
Data Acquisition Practitioner at SANSA

What is your educational background?

I have a bachelor's degree in computer science and Microsoft certifications.

What does your job entail?

I am the data acquisition practitioner at SANSA. This means I am responsible for all the research data that SANSA collects. I am in the process of making this data available in an online data portal.

What do you enjoy about your job?

Every day is different in IT. I enjoy working on and solving problems.

What is something that most people don't know about the work you do?

In the IT field it is okay if you don't know the solution to a problem because there is always someone out there who can help you. I use Google a lot!

What challenges do you face working in your field?

Every day presents a new challenge to work on. I have learnt that every problem has an answer you just need to find the solution.

What are your future career goals?

To implement an integrated data portal that can be used nationally and internationally.

What advice do you have for learners considering a career in your field?

Cultivate a "can do" attitude and study as hard as you can.

Is continuing your education important in your type of career?

Yes. IT moves at a very fast pace and you cannot afford to get left behind.

What jobs are available to someone with your qualifications?

There are so many jobs available in this field such as: database development, data analyst, data acquisition, software development, business analyst, software tester and project management to name a few.

What is your favourite quote you live by?

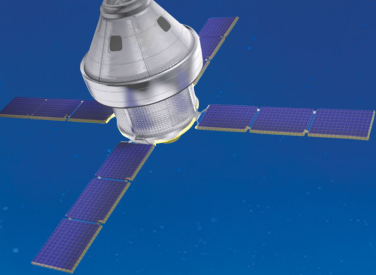
Just do it!

Who is your role model?

My mother is my role model. She has a "can do" attitude and doesn't stop until the job is done.

"Just do it!"





This is Space Calling!

Join the South African Space Agency...

Are you interested in working with the space sector to bring real benefits to society?

Are you ready to take on exciting space challenges?

SANSA is looking for individuals who are driven and forward thinkers!

Apply now for a SANSA postgraduate bursary!

Earth Observation (Hons, MSc, PhD)

- Remote Sensing
- Earth System Science with Remote Sensing
- Environment and Health including climate change
- Software and Systems Engineering
- Geospatial Programming
- Data scientists

All SANSA divisions (Hons, MSc, PhD)

- Computer Science
- Information Systems
- Field of your choice related to key SANSA objectives

Space Science (Hons, MSc, MPhil, PhD)

- Antarctic radar studies of climate change
- Multi-instrument studies of space weather
- Geomagnetically induced currents in power systems
- Multi scale ionospheric physics, structure and dynamics
- Improvement of SANSA's ionospheric and radio propagation model

Engineering (MEng, MTech, MSc, PHD, DTech)

- Software and Software Systems Engineering
- Aeronautical, Aerospace, Mechanical, Electrical and Electronic Engineering
- Space, Systems, Antenna and RF Systems Engineering

Requirements and applications can be found and submitted online from the SANSA website:

<http://www.sansa.org.za/bursaries>

All enquiries can be sent to grants@sansa.org.za

