

UNLEASH YOUR POTENTIAL

CAREERS AND BURSARIES



South African
Weather Service

ISO 9001:2008 certified

Meteorologist

Meteorological Technician

Climatologist

Air Quality Specialist

Meteorological Data Technologist

About the South African Weather Service

In this century weather, water and climate related issues are becoming central to the sustainable development of South Africa and the African region. The South African Weather Service (SAWS) is your partner in facing these challenges.

SAWS is the authoritative voice for weather and climate warnings in South Africa. As a member of the World Meteorological Organisation (WMO), it complies with international standards in weather and climate forecasting.

SAWS operates 23 weather offices, which contribute to our vast operational network. SAWS is a government agency under the Ministry of Water and Environmental Affairs.

In terms of the South African Weather Service Act, No. 8 of 2001 the organisation provides public good and commercial (where the user pays principle applies) services.

Our vision

To be the foremost provider of relevant services in respect of weather, climate and related products, which contribute to sustainable development in South Africa and the African Continent.

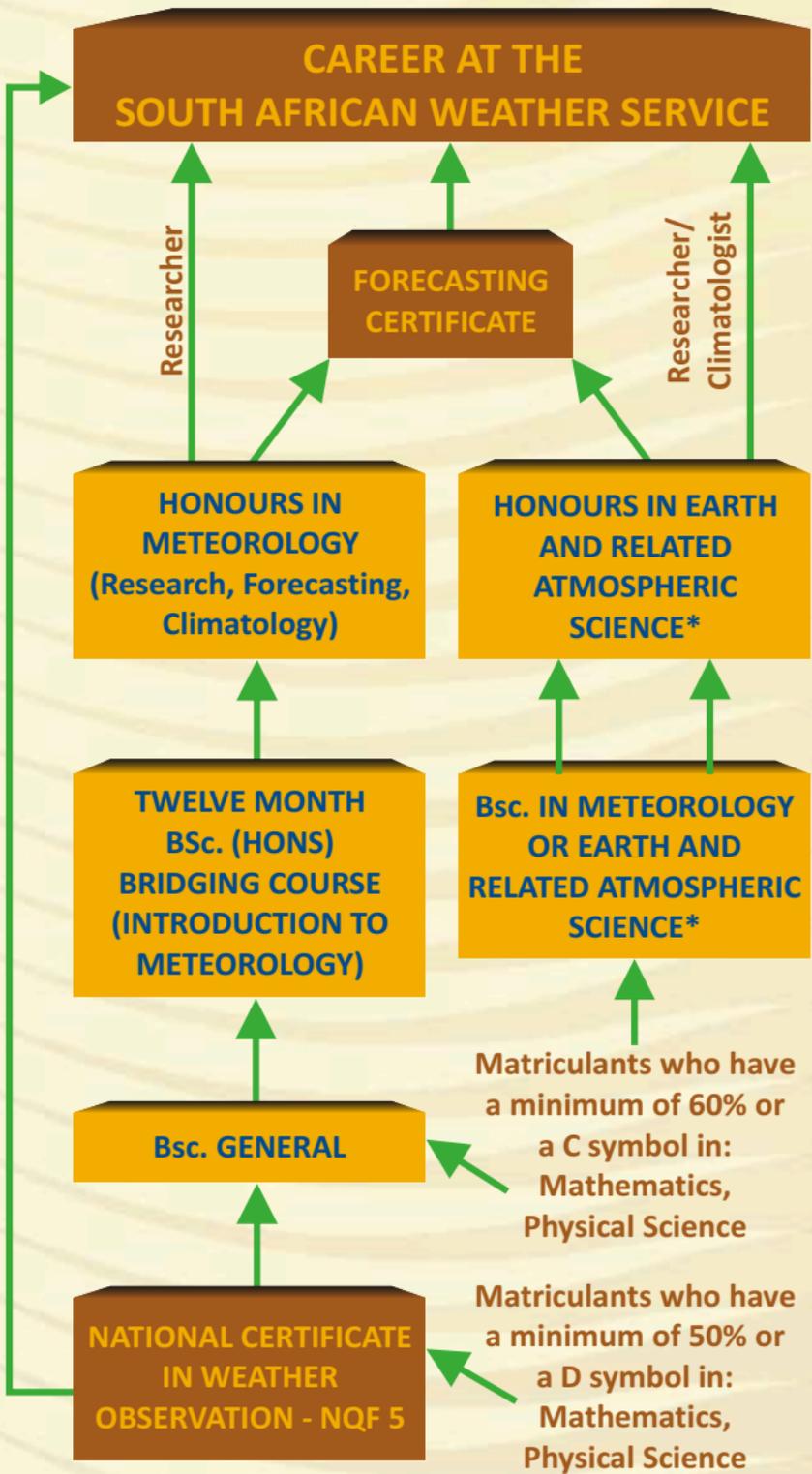
Career opportunities at SAWS

- **Specialists:** Operational Forecaster, Climatologist, Researcher, Air Quality Specialist, Data Quality Controller, Client Liaison Officer, Meteorological Technician, Meteorological Data Technologist – please note that limited bursaries are available for these careers.
- **Other careers in areas such as:** Finance, Supply Chain Management, Human Capital Management, Human Capital Development, ICT, Corporate Affairs, Climate Services, Training – please note that full time bursaries are not available for these careers.

Atmospheric Sciences as a career

Weather and climate play an important role in people's lives and great concern exists that man's activities may irreversibly change the weather and climate as we know it today. Daily activities, ranging from aviation, shipping, and agriculture through to sport, depend on the weather. From the recording, monitoring and research of weather phenomena to the final operational forecast (especially with regard to public safety at times of severe weather), lies the involvement of numerous personnel in various job descriptions.

What are the fields of study?



* Earth and related atmospheric science include: Meteorology, Agro- and hydrometeorology, Air Quality, Climatology, Oceanography, etc.

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METEOROLOGISTS

...make use of real-time satellite imagery, radar images, analysed weather charts, computer generated model fields and numerical weather products to issue forecasts...

OPERATIONAL FORECASTING

Operational forecasters make use of real-time satellite imagery, radar images, analysed weather charts, computer generated model fields and numerical weather products to issue forecasts from present time to one week ahead. These are made available to radio, print media and TV for broadcast and publishing purposes, as well as on our website www.weathersa.co.za or www.weathersa.co.za/m. Specialised forecasts are also undertaken, such as those for aviation (take-off/landing and en route forecasts), marine forecasting for shipping (sea, swell and wind conditions), forestry (fire warnings), farming and whenever extreme weather conditions are expected (severe weather warnings). An interest in research work is also encouraged as this enables the operational forecaster to keep abreast of developments as well as assists in improving methods of forecasting.

The nature of the services provided by the SAWS to aviation and shipping, necessitates the issuing of forecasts at prescribed times throughout the day. It is therefore necessary for forecasters to work shifts, requiring a valid driver's license.

RESEARCH

In order to maintain an effective and improved weather service, it is necessary to undertake research and development in all aspects of weather and climate. This is often done as part of a higher degree at a university. Research results from South African meteorologists are increasingly being acknowledged throughout the world and published in various journals.

Fields of research cover numerical weather prediction, seasonal climate studies, weather forecasting (including flood forecasting), precipitation research, radar development, and atmospheric monitoring and research for climate change studies.

CLIMATOLOGISTS

Climatologists disseminate, analyse and do research on large volumes of climate data and records archived by SAWS.

Analyses are done for the following industries:

- insurance
- engineering
- tourism
- transport
- the built environment

Climatologists analyse data to produce climatological publications and information. Other functions include the dissemination of climate data and information to various users, mapping and graphing data, assisting clients with data interpretation, and informing decision makers on climate-related matters.

METEOROLOGICAL TRAINERS

In order to maintain and enhance meteorological services, it is necessary to train meteorological technicians and forecasters. As this is a very specialised field, a dedicated team of specialist trainers is required.

What kind of personality is best suited for work in the meteorological environment?

An interest in atmospheric phenomena, mathematics and physics and a desire to understand how the atmosphere and oceans work. Accuracy and the talent to reason quantitatively, especially when under pressure, are essential, while the ability to communicate with others and to speak well in front of people is also a great asset.

Scientifically astute individuals with a preference for research on historical climate change, the study of climate trends and extremes as well as the application of climate data to various sectors will be interested in the work of the climatologist. Climatologists need to work with meteorological technologists to ensure data quality, apply existing procedures and develop new techniques.

What kind of school training is required?

The minimum requirement is Grade 12 Matric exemption with Mathematics and Physical Science passed with at least +60% or a C symbol.

What further training must be undertaken?

For all four specialties:

A BSc (Hons) degree in Meteorology or Atmospheric Sciences. Further study in the specialisation will also be needed.

A person with a pure BSc degree with mathematics, applied mathematics, physics etc, will need to do a Bridging Course before registering for the Honours Degree in Meteorology.

To become a forecaster, the certificate for forecasting needs to be completed after the honours degree.

This is a numbers limited course.

Where does one work?

At the SAWS Head Office in Pretoria (**forecasting/climatology/research and meteorological trainers**) or main regional forecasting offices around the country. One can also apply for posts on Marion and Gough Islands where a year's service will be required.

Where else could one work in these professions?

At the CSIR, universities, city councils and agricultural institutions. Although there are a few private meteorological consultants and forecasters in South Africa, this market is still small. A few teaching positions are also available at universities.

Climate Change and Global Warming are not only contentious, but above all popular research and discussion topics of the day; therefore a career in Climate Service would be extremely interesting, though quite challenging.

Large volumes of climate data stream on a daily basis into the National Climatological Databank of South Africa. The South African Weather Service is, through legislation, the custodian of this databank. Climatologists, Scientists, Data Quality Controllers, and Client Liaison Officers in Climate Service are actively involved performing various functions including amongst other quality control (QC) of data, data manipulations in graphical or GIS mapping format, research, publishing, as well as selling value-added data and related information to clients and customers. These careers require scientifically astute and dedicated individuals.

AIR QUALITY SPECIALISTS

deal with many aspects relating to air quality.

The three main focal areas in SAWS are the measurement, analysis and archiving of ambient air quality; the development of atmospheric and greenhouse gas emission inventories; and air quality modelling and forecasting.

The measurement, analysis and archiving of ambient air quality require technical experts in the operation of air quality instrumentation that measure atmospheric pollutant concentrations. A good understanding of chemical and meteorological processes that affect the quality of the air is also required.

Scientists that archive, analyse and disseminate air quality data also need to understand the chemical and meteorological processes that affect the quality of the air, the effects of various atmospheric pollutants on environmental quality and human health and be able to use database systems to save and access air quality data and communicate results with the general public and technical audiences.

Scientists involved in the compiling of an Emissions Inventory (a record of all the atmospheric pollutants and greenhouse gases that are produced in the country) need to have a good understanding of the industrial processes that create atmospheric pollutants, the natural processes that release chemicals into the atmosphere and be able to use advanced database and geographical information systems to capture and store the location and extent of emissions in the country. Information can be used for atmospheric dispersion modelling, air quality forecasting and determining the total amount of atmospheric pollutant and greenhouse gas emissions.

Air quality forecasting and modelling requires scientists that utilise numerical weather forecasting or climate models and the outputs of emission inventories to predict the air quality at a specific location. This information can be used to predict, among others, health impacts on the community.

What kind of personality is best suited to this field of work?

Air quality specialists need to have an interest in chemical and atmospheric processes.

What kind of school training is required?

The minimum requirement is Grade 12 Matric exemption with Mathematics and Physical Science passed with at least +60% or a C symbol.

What further training must be undertaken?

- An Air Quality-focused BSc (Hons) Degree
- BSc. Eng. (Chem)

Where does one work?

At the SAWS Head Office in Pretoria, or at the Global Atmosphere Watch (GAW) in Stellenbosch/Cape Point.

Where else could one work in these professions?

Air quality consulting firms, central, provincial and local government institutions.

METEOROLOGICAL TECHNICIANS

... observe the current weather and maintain observation instrumentation.

Meteorological technicians observe and record the different elements of the weather each day at specified times with the aid of meteorological instruments. However, visibility, the amount and type of clouds and present weather are observed without instruments and are determined according to specific classifications. The changes, at different levels, in wind speed and direction, temperature, humidity and atmospheric pressure are determined twice a day at certain stations. All this information is then compiled into weather reports with the aid of internationally applied codes, and then transmitted nationally and internationally by means of the Weather Service's communication system. Another factor determining the accuracy of weather observations is the reliability of the measuring instruments that are used. Meteorological technicians must therefore be able to maintain these instruments in good working condition. All weather data is quality controlled before it is captured on to the main climate databank at the SAWS Head Office in Pretoria, most of this work being done on computer.

The nature of the services provided by SAWS, as well as the need to ensure continuity of data, makes it necessary to conduct observations at prescribed times 24 hours per day. It is therefore necessary for meteorological technicians to work shifts. A driver's license is also required for the undertaking of inspections and shift work.

What kind of personality is best suited to this field of work?

The reliability of weather forecasts and meteorological research is based mainly on the accuracy of the weather observations and the reliability of the climate data. Reliable persons, who are able to perform tasks independently, regularly and accurately, are needed.

What kind of school training is required?

The minimum requirement to be appointed is Grade 12 with Physical Science and Mathematics passed with at least 50% or a D symbol.

What further training must be undertaken?

SAWS offers a 10 month Weather Observer course to successful applicants. The course includes aspects such as surface and upper-air observations, maintenance of meteorological instruments, automatic weather stations, climatic data and inspections of climatic stations. As computer literacy is essential in this field of work, training is also given in the use of PC-based applications. This is a numbers limited course.

Where does one work?

At the SAWS Head Office in Pretoria, or at the numerous weather offices around the country. Posts at Marion and Gough Islands and at Antarctica, where a year's service will be required, are also available.

METEOROLOGICAL DATA TECHNOLOGISTS

... are responsible for the installation and maintenance of specialised electronic instrumentation.

People involved in this occupation are responsible for the installation, maintenance, specialised development and management of all meteorological electronic instruments and related observation networks and systems - such as weather radars, automatic weather stations and electronic airport systems - throughout the country, as well as on Marion and Gough Islands.

The recording of weather data forms an essential link in successful weather forecasting and research purposes and it is therefore vital that the instruments used in automatic weather stations and electronic airport systems are kept up to date with technological advances. These instruments are becoming more and more widely used in areas where there was previously a lack of important meteorological data that will, in time to come, result in an even larger climate databank for research purposes. Data obtained through weather radars form an integral part of weather forecasting, especially in the nowcasting of and during extreme weather events, as well as for research purposes. Maintenance and development of these weather radars is therefore necessary to maintain and improve existing services provided by SAWS.

The nature of the services provided by SAWS, especially as far as aviation is concerned, requires that the electronic airport systems are maintained 24 hours a day. It is therefore necessary for people in this line of work to do standby duties.

What kind of personality is best suited to this field of work?

As the continual functioning of all meteorological instrumentation is critical in maintaining a reliable databank of weather observations, one will need to be responsible, accurate and have the ability to work independently of others.

What kind of school training is required?

The minimum requirement is Grade 12 with matric exemption with Mathematics and Physical Science

What further training is required?

A B.Tech. Electrical Engineering: Light Current is the minimum requirement for employment. Further study in the specialised field might also be necessary.

Where does one work?

Employment is with SAWS at the Irene weather office as well as at a number of the main weather offices around the country.



BURSARIES

Do you have what it takes?

Bursaries are available to learners for full time study at the South African Weather Service and South African universities in the following disciplines:-

- National Certificate in Weather Observation – NQF 5 – one year
- BSc. in Meteorology and BSc. in Earth and Atmospheric Science – 1st, 2nd and 3rd year
- BSc. (Honours) bridging course (Introduction to Meteorology)
- Air Quality focused BSc
- BSc. Eng (Chem)
- Honours in Meteorology and Honours in Earth and Atmospheric Science
- Postgraduate certificate in weather forecasting
- Data Technologist

The Promise

At SAWS we take a broad view of your development as a young professional and our bursary scheme is designed to equip you with all the building blocks you will need to make a success of your career.

Who should be interested?

- Matriculants who have a minimum of a 60% (50% for meteorological technicians) in: Mathematics and Physical Science.
- General Bachelor of Science graduates with major subjects such as Mathematics, Applied Mathematics, Physical Science, Chemistry, Mathematical Statistics, Meteorology or Air Quality-related subjects.

The bursary includes:-

- Registration fees
- Tuition fees
- Monthly stipend for the duration of the bursary awarded

After obtaining a degree/diploma/certificate, the bursar must work for SAWS for a year in respect of each year for which he/she received a bursary, or repay the bursary costs incurred by SAWS.

How to get more information?

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