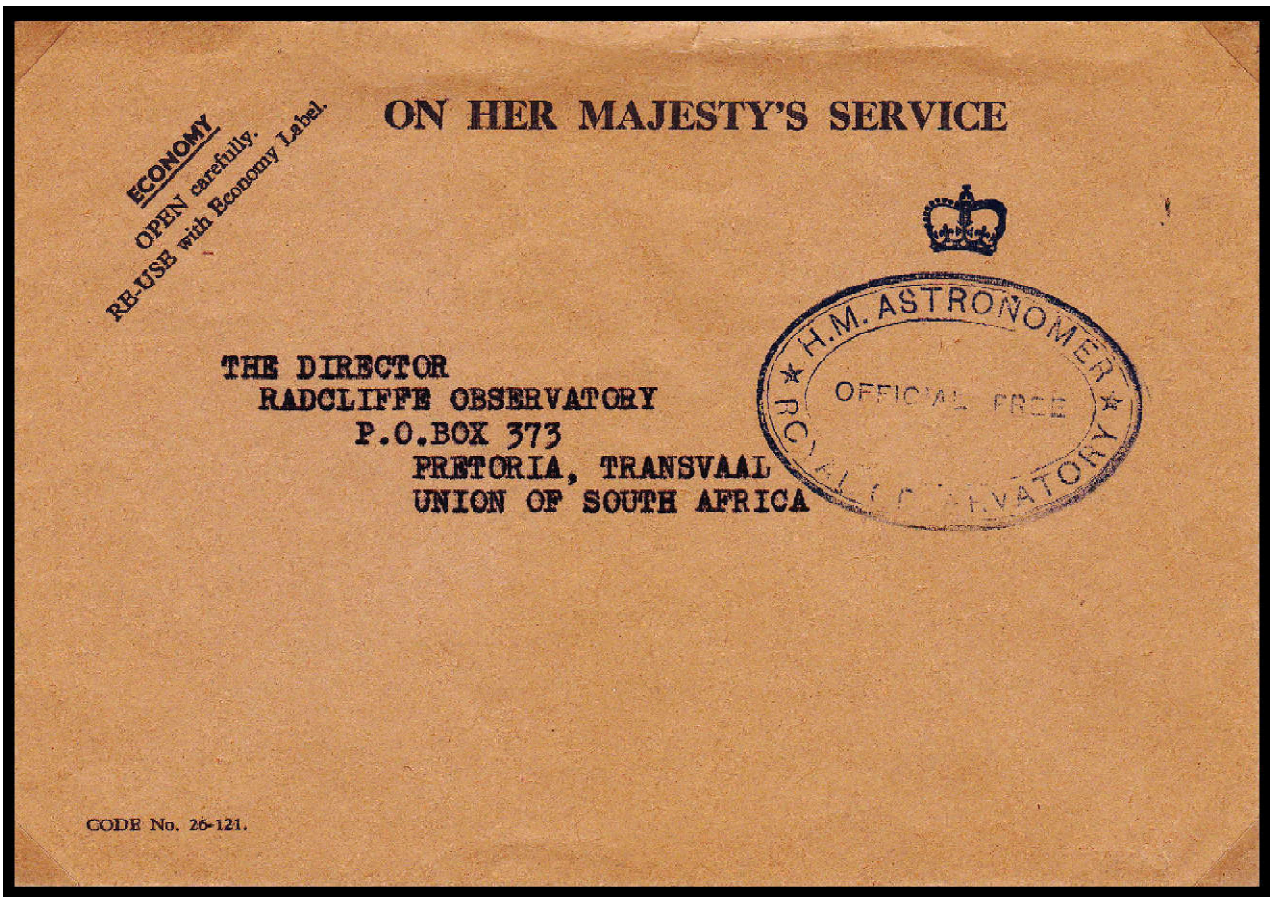
SPACE

A SOUTH AFRICAN PERSPECTIVE

John Kollen



Circa 1950. OHMS Cover. H.M. ASTRONOMER, ROYAL OBSERVATORY, CAPE TOWN, to the RADCLIFFE OBSERVATORY, PRETORIA.

Space – a South African perspective

South Africa has a long history with regards to the study and utilization of space.

This exhibit reflects an overview of that history, and is filled in with various other space related items and facts where South Africa has been influenced by these. This is also in mostly chronological order and also details the official and un-official postal and philatelic type material that was issued by South Africa including the TBVC countries.

This exhibit covers the following

A large part reflects the astronomical history of South Africa, or what could be observed from South Africa

A tracking station supporting NASA, which was also eventually fully converted to an observatory

Satellites that South Africa has access to or operates

The Solar System including Halley's Comet and a Solar Eclipse

Some foreign items (7) are also included, mostly where South Africa has not issued appropriate material for what is included in the exhibit. The last foreign item is a New Zealand stamp depicting SALT, which issued this stamp as they are also a partner in this venture. For all such issues the text has been included in blue.

This stamp was one of a set of 11 issued in 2012, this one acknowl edging the achievements of the astronomers observing and exploring the night sky.

The stamp on the left shows the silhouette of an indigenous Southern African, an ancestor to today's San peoples, contemplating the stars. Culturally specific readings, navigational maps and mythical and spiritual links layer the night sky in the artistic represent tation of the imaginary drawing ema nating from the hunters head.

In 1685 a temporary observatory was established in what is now Cape Town by a J esuit priest (Father Guy Tachard).

This was 76 years after Galileo (pictured) made his first astronomical observa tions.

In 1751 Abbe Nicolas-Louis de La Caille was sent to the Cape by France's Royal Academy of Sciences to set up an observatory in what is now Strand Street. As he charted the positions of almost 10,000 stars, catalogued 42 Nebulas and also discovered 14 new constellations between 1751 and 1753, he is today widely regarded as the founder of modern Southern Hemisphere astronomy.

Please see left for de La Caille and right an Australian item showing M83, one of the 42 Nebulas mentioned above.

The first permanent structure was completed in 1829, after the British Admiralty agreed in 1820 to construct an Observatory in the Cape. Shown below is an unposted envelope with a postmark from Observatory, and cachet marked "S.A. Astronomical Observatory (CSIR) Observatory Cape S.Africa"

The stamp on the left reflects the observatory in 1828 with 2 domes. It also reflects the Milky Way, the Magellan Clouds and some stars.

First to run this facility was Reverend Fearon Fallows (Cambridge mathematician and clergyman). His assistant and wife, Mary Ann Fallows, who discovered a comet in the constellation of Octans, is regarded as South Africa's first female astronomical observer.

Next was Thomas Henderson, who compiled a catalogue of the Southern Hemisphere's stars and at that time also made the most accurate calculation of the distance of the Moon from the Earth.

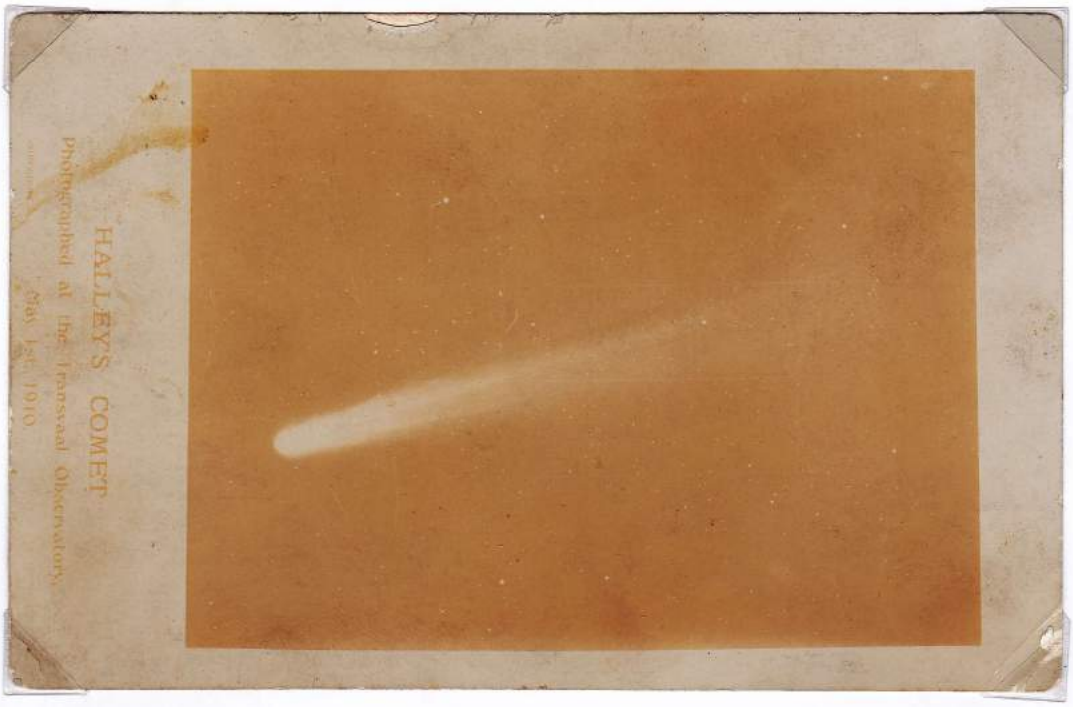
Next was Thomas Maclear who founded geodetic surveys in South Africa. Geodesy is the science of measuring the earth or an area of it. The instrument to the right is a Tellurometer designed by a project team led by Dr TL Wadley under the CSIR banner.

Sir John Herschel who was next then catalogued 1,707 clusters and nebulae as well as more than 2,000 binary stars.

David Gill who succeeded Herschell in 1879 produced a photographic survey of the Southern skies which was published as Carte du Ciel (Map of the Heavens) and the Cape Photographic Durch-musterung (catalogue)

Another Observatory constructed in South Africa is the Innes Telescope at the Johannesburg Observatory depicted on the stamp to the left. It also features an inverted image of Proxima Centauri that was discovered by Robert Innes in 1915 while working at this observatory.

Halley's Comet was observed and photographed by the Transvaal Observatory in 1910 and is shown on this postcard. Text on the Postcard—
"HALLEY'S COMET", "Photographed at the Transvaal Observatory", "May 1st, 1910"

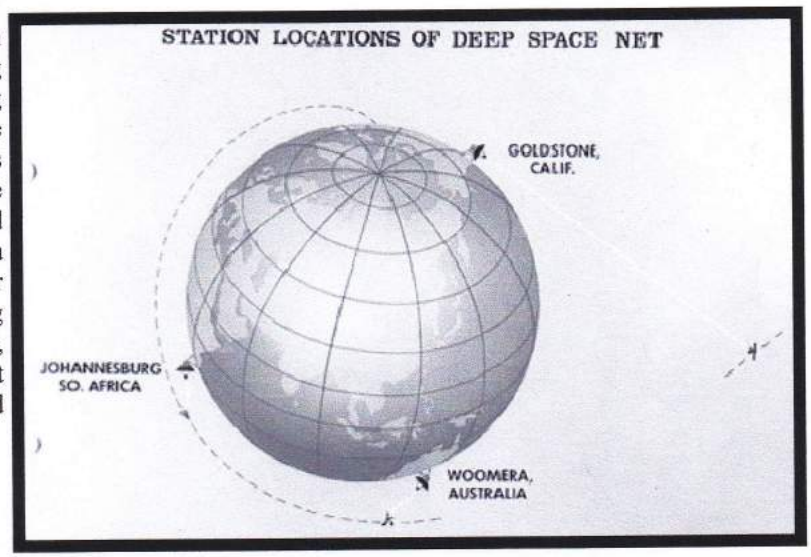


Because of the viewing conditions, weather, and urban development at Oxford UK, the Radcliffe Observatory was moved to South Africa in 1939.

Eventually that site, in Pretoria, also became untenable and the facility was combined with others into the South African Astronomical Observatory (SAAO) in the 1970s.

The stamp at right reflects the telescopes at the SAAO in Sutherland. The background is filled with elements of the diagrammatic data collected and mapped through the lenses of these telescopes.

On 8 April 1959 Francis B. Smith (NASA Chief of Tracking Programs) whilst testifying before the House Committee on Science and Astronautics in the USA, described the network of stations that would be required for tracking a deep space probe on a 24 hour basis. It needed 3 tracking stations 120 degrees apart, with the other 2 being at Goldstone in California and the 3rd at Woomera in Australia.



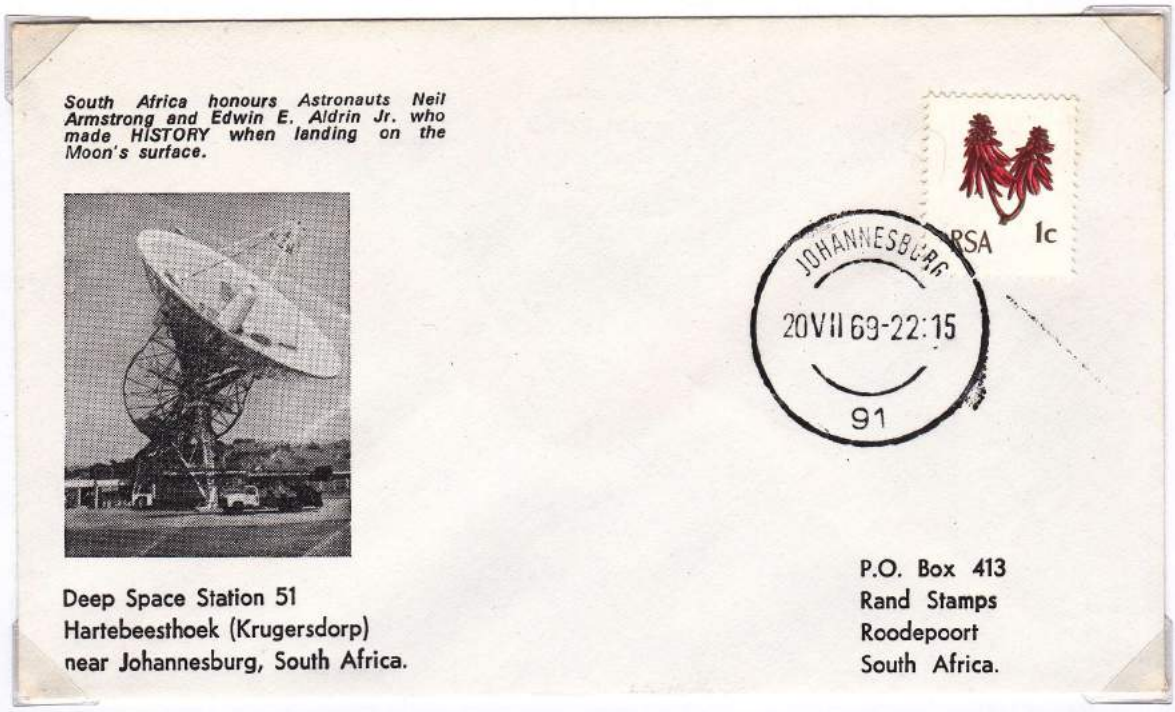
Subsequently in August 1961 South Africa's deep space tracking station at Hartebeesthoek, became operational, this was at Krugersdorp near Johannesburg and was funded by the US space agency. Dedication took place on September 8, 1961. It was used for tracking and communication with the USA Mercury, Gemini and Apollo missions.

The 3 stamps below show a Mercury (single person) capsule, twin Gemini capsules (each 2 persons) and the moon landing of Apollo 11

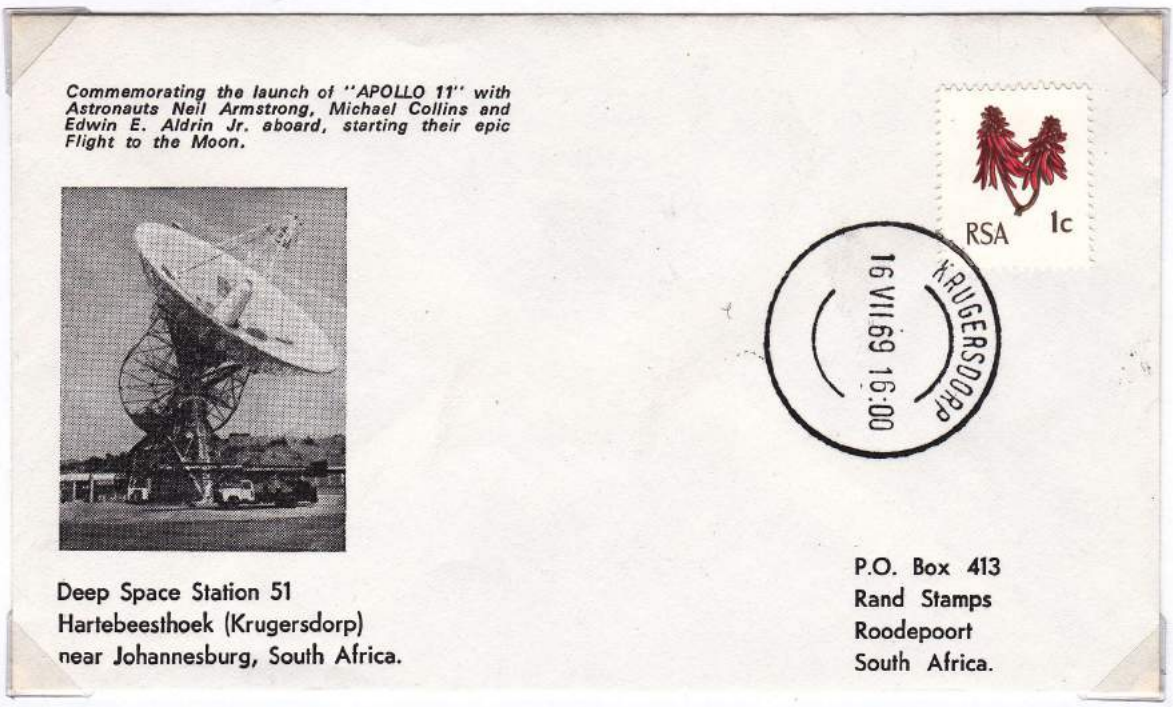
This facility was operated by the CSIR for NASA until its closure in 1974. It then be came a radio astronomy observatory, operating first under the CSIR, and eventu ally under the National Research Foundation in 1999

On this stamp is depicted the 26 meter diameter radio telescope at the Hartebeesthoek Radio Astronomy Observatory (HartRAO). The stamp shows the sound waves received from space as a pattern of data rain.

3 covers were issued (Krugersdorp covers) reflecting Deep Space Station 51 at Hartebeesthoek, one dated 22-01-1969, and another dated 16-07-1969. This cover commemorates the launch of Apollo 11 which resulted in the first moon landings on 21 July 1969.

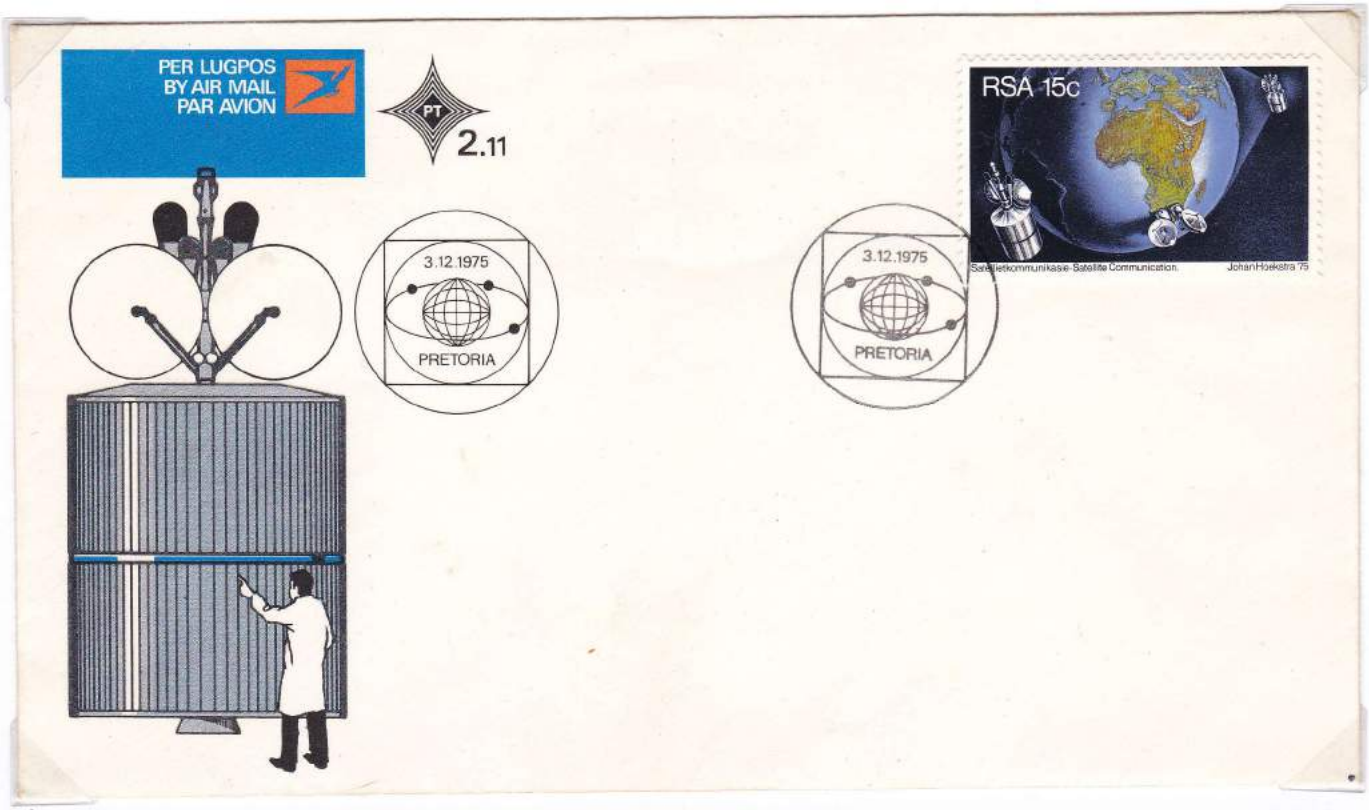


The third cover is dated 20-07-1969 and commemorates the landing of Astronauts Neil Armstrong and Edwin E Aldrin on the Moon. *Also please note that this has a Johannesburg cancellation and not Krugersdorp as the other 2 covers.*

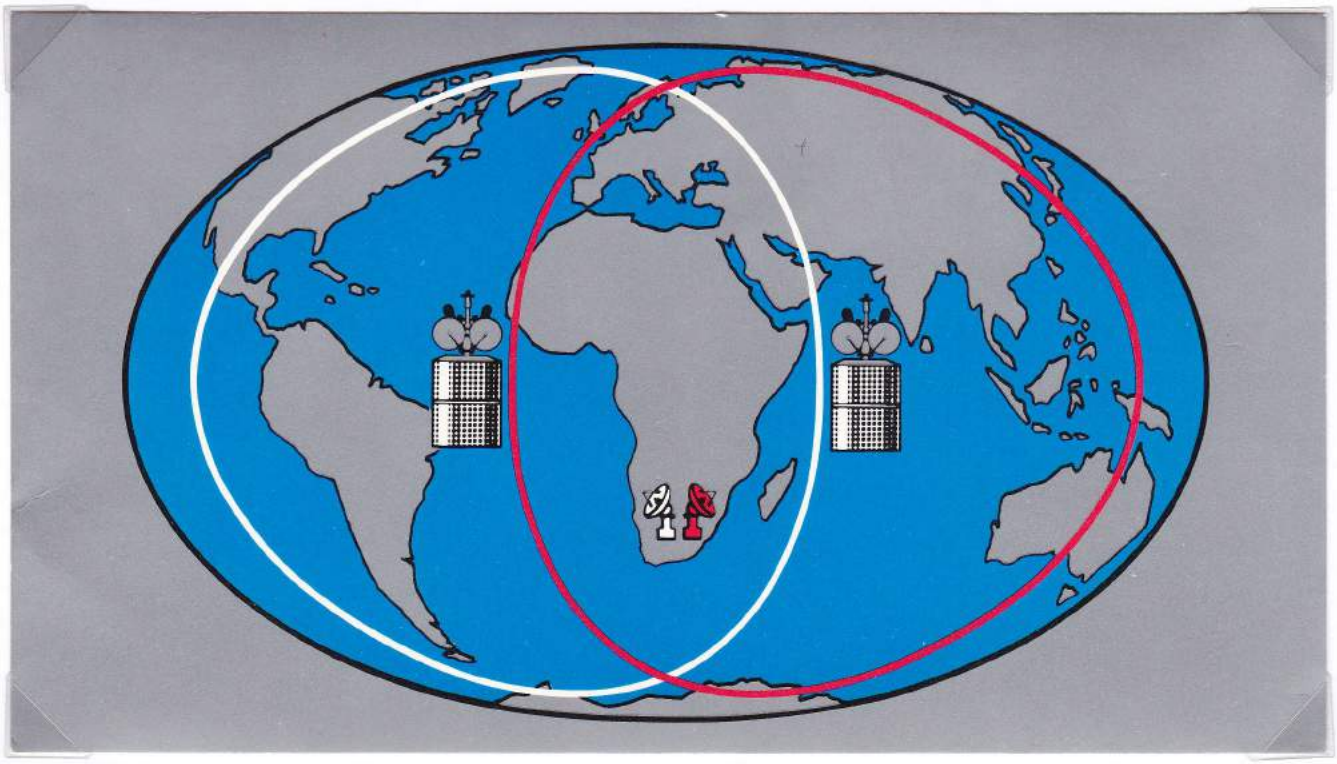


This facility was operated by the CSIR (South African Council for Scientific and Industrial Research) on behalf of NASA, until it's closure in 1974. Subsequently it became a radio astronomy observatory, first under control of the CSIR, and then the FRD (Foundation for Research Development) which became the NRF (National Research Foundation) in 1999.

On 3 December 1975 South Africa issued a 15c stamp depicting satellite communication. South Africa is a member of Intelsat, which launched Intelsat IV-A on 25 September 1975. Synchronous satellites over the Atlantic, Indian and Pacific Oceans provide 24 hours global coverage, except for the Polar regions. The First day Cover also depicts a drawing of the satellite.



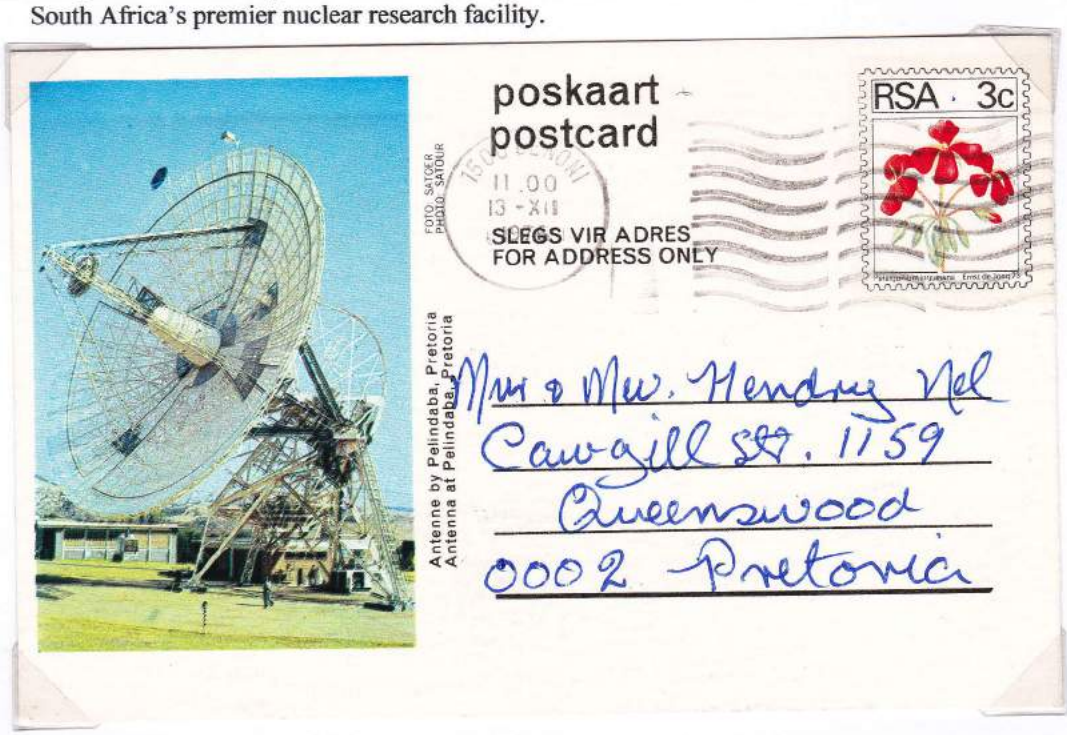
The insert card in the FDC shows the coverage by 2 satellites of most of the earth.



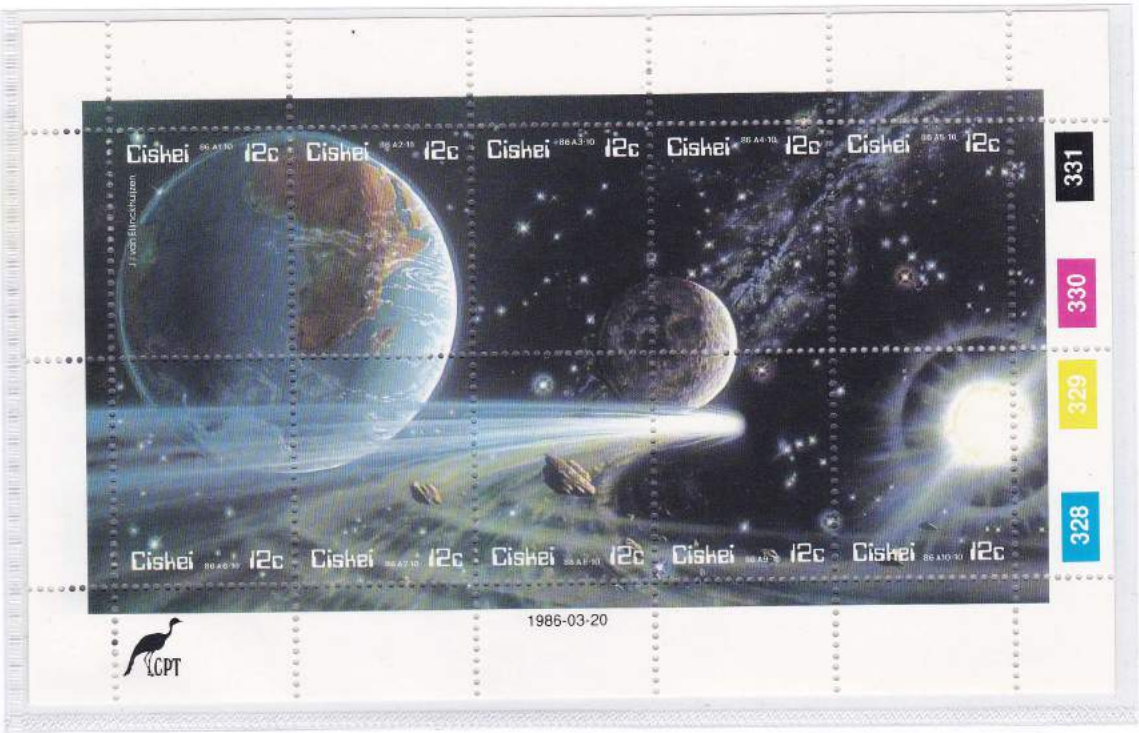
The South African Post Office opened it's satellite communication earth station at Hartebeesthoek which will provide TV relay facilities for the SABC in 1975. This stamp was also used on a cover for the official introduction of full time television in South Africa with a cancellation dated 5 January 1976.

With the imposition of sanctions against Apartheid in the 1970's, the S.A. government accelerated it's nuclear and space weapons programme. By the 1980's this had resulted in the development of rocket based delivery systems with a domestic launch capability with mainly military applications. With the end of Apartheid, these programs were terminated, with only remnants at Bredasdorp and Grabouw remaining. With the normalisation of S.A. international relations in 1994, it was ironic that projects to complete a S.A. launcher and satellite was discontinued.

An official postcard reflecting the antennae at Pelindaba near Pretoria was issued around 1976. Pelindaba was South Africa's premier nuclear research facility.



Halley's Comet returned in 1986, with many astronomers around the world observing this eternal wanderer.



Ciskei issued a sheetlet of 10 stamps commemorating this event. This sheetlet shows Halley's passing Earth an Venus on the way inward towards the Sun.

Janssen Pharmaceuticals also issued a set of 6 advertising postcards commemorating Halley's Comet.

In 1965 on the 100th anniversary of the ITU (International Telecommunication Union) South Africa issued a set of 2 stamps, one which depicts the ITU emblem and satellites circling the globe.

Bophuthatswana issued a set of 4 stamps on 15 August 1979 reflecting platinum and it's uses. The 3rd stamp in the set (20c) shows a communications satellite which would contain some platinum. Furthermore the First day Cover reflects platinum as a component in Space Research.

A set of Easter stamps in aid of charity were issued in 1988 reflecting the solar system. These reflect the Sun, Mercury, Venus, The Earth, the Moon, Venus, Jupiter, Saturn, the Rings of Saturn and Uranus.

Ciskei also issued a set of 4 stamps depicting satellites over Southern Africa on 4 June 1992

- Intelsat VI – a communications satellite
- GPS Navstar – used for navigation
- Meteosat – Meteorology
- Landsat VI – utilized for earth resources

The FDC reflects the satellite circling the Earth in the cancellation and a dish antennae

A mini-sheet with the GPS Navstar stamp was also issued, which was included on a Foundation cover.

On 10 August 1991, Ciskei issued their second definitive series consisting of 15 stamps depicting the solar system. This was issued in a sheetlet but each stamp had their own design

In 1993 the Space Affairs Act (No 84 of 1993) was enacted which regulates government and non-governmental space-related activities. It prohibits certain activities, except when a licence has been granted by the National Space Council.

This stamp celebrates the newly formed South African National Space Agency.

South Africa is currently the only African country with an indigenous satellite design and manufacturing capabil ity, and has, since the 1950s, maintained the most advanced ground support infrastructure and capability on the continent. In fact, South Africa's first satellite, SunSat, was a modest satellite built by the University of Stellenbosch students and lecturers and launched from Cape Canaveral in 1999. The satellite carried various experiments and an amateur radio transponder that delighted radio enthusiast world-wide. From this modest beginning grew SunSpace (Pty) Ltd, today a successfully company involved in the space communications field.

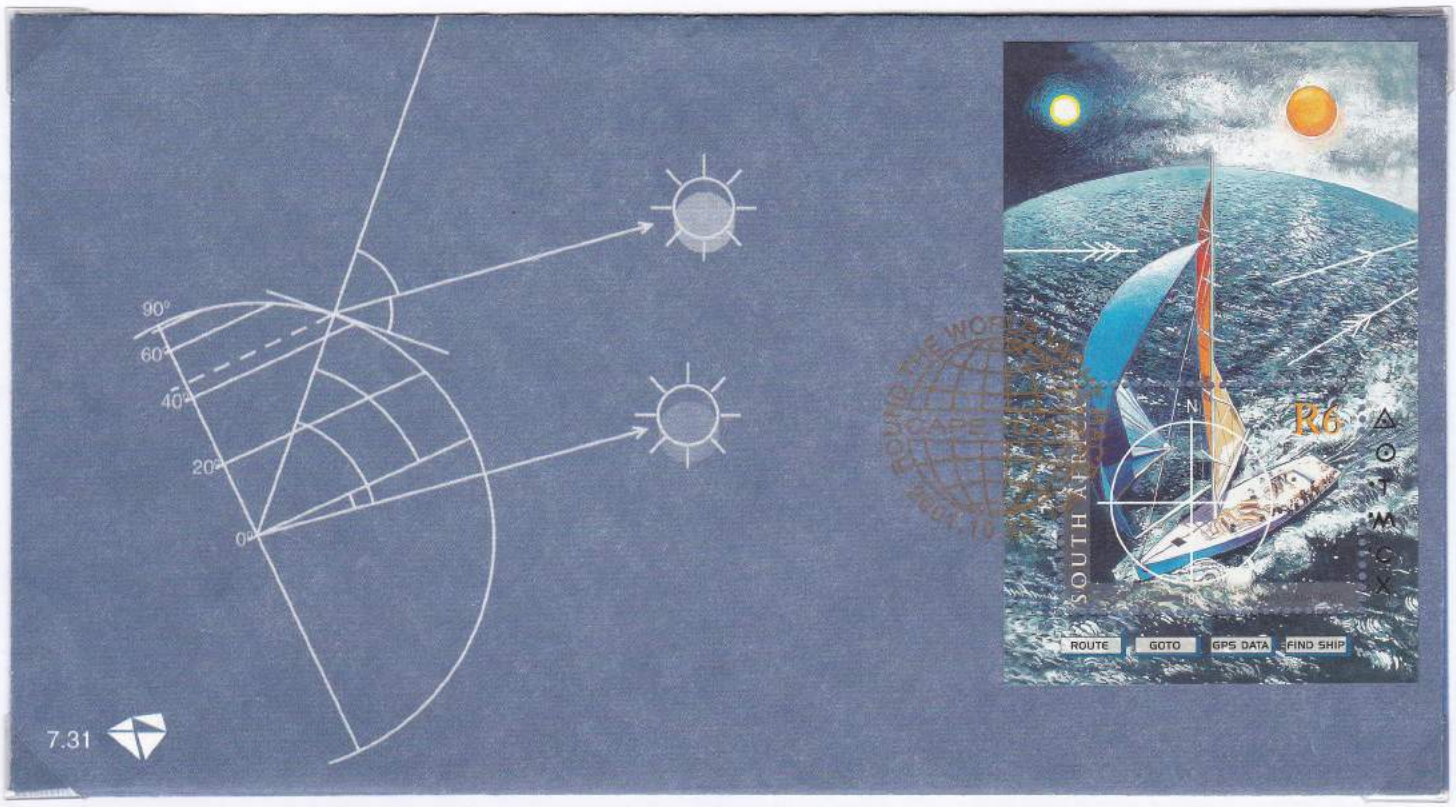
This satellite is reflected on 1 stamp in a s et of 10 issued on 17 December 2003 to commemorate 100 years of flight

In April 2002 Mark Shuttleworth became the first African in space when launched aboard a Russian Soyuz craft and also visited the Interna tional Space Station.

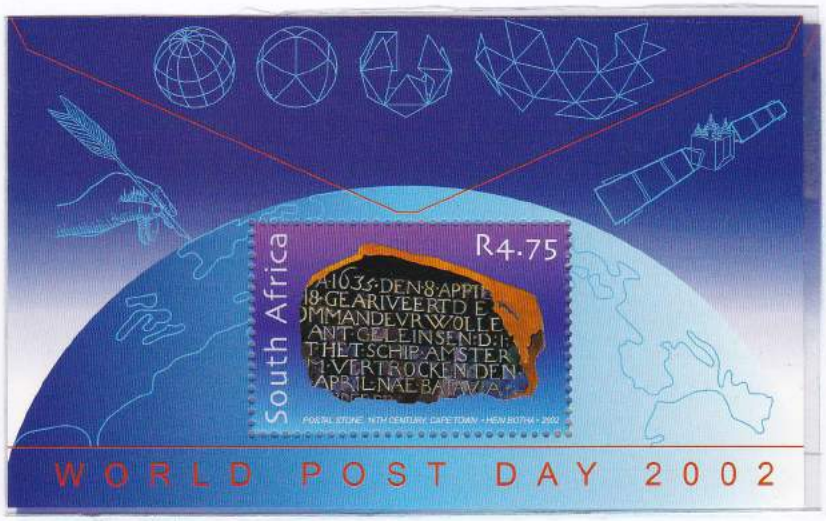
He conducted various experiments designed by South African scientists, thus making previously inaccessible space research available to the African scientific community. This flight is reflected on a stamp in the 100 years of flight set issued on 17 December 2003.

On the stamp in the right hand corner is the logo for FAIS (First African in Space).

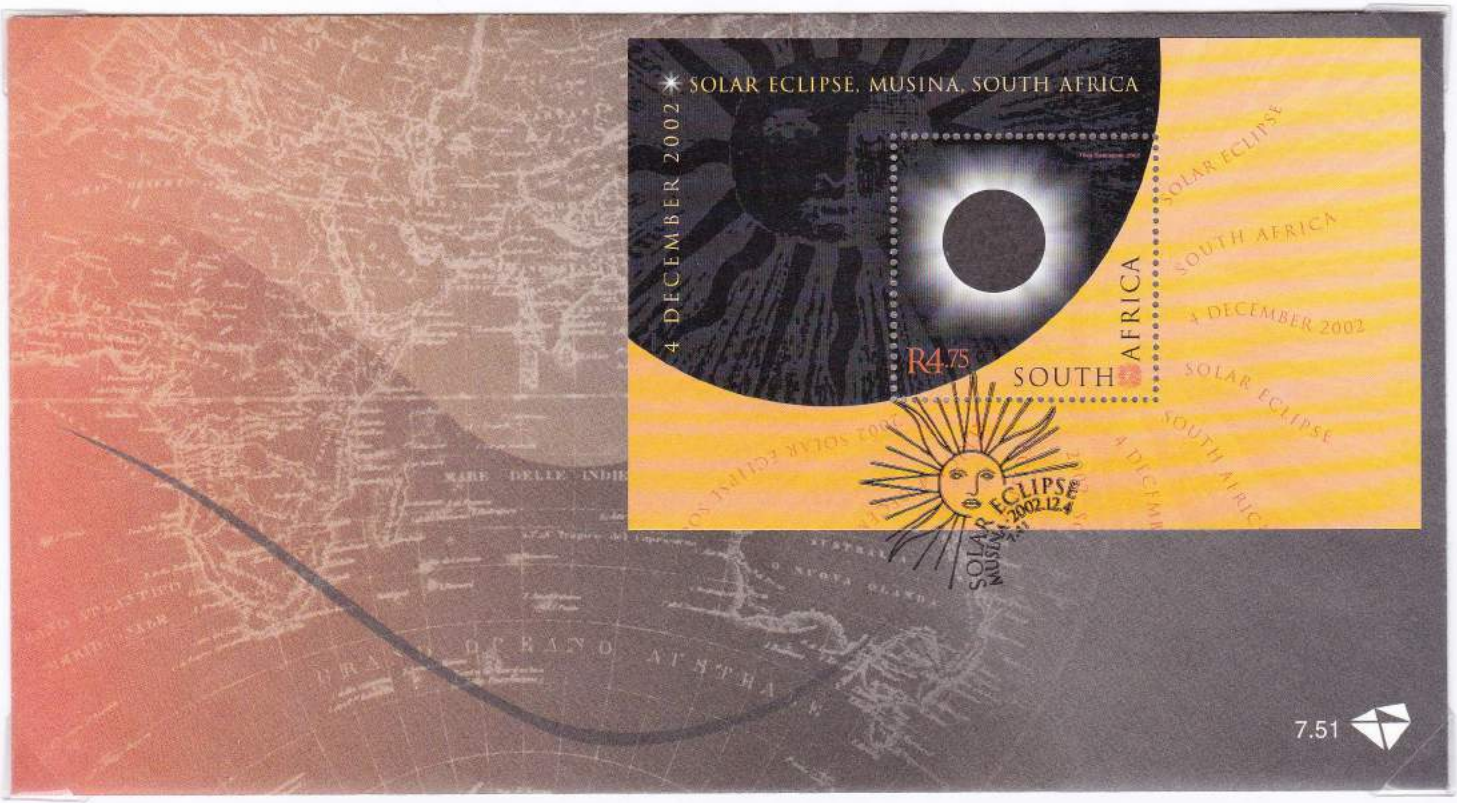
On 23 October 2001 a stamp and miniature sheet was issued honouring those that would be taking part in the Volvo Round the World Ocean Race. The miniature sheet reflects the Moon and Sun over the boat sailing on Earth's ocean. The commerative envelope shows a sextant reading of a solar position.



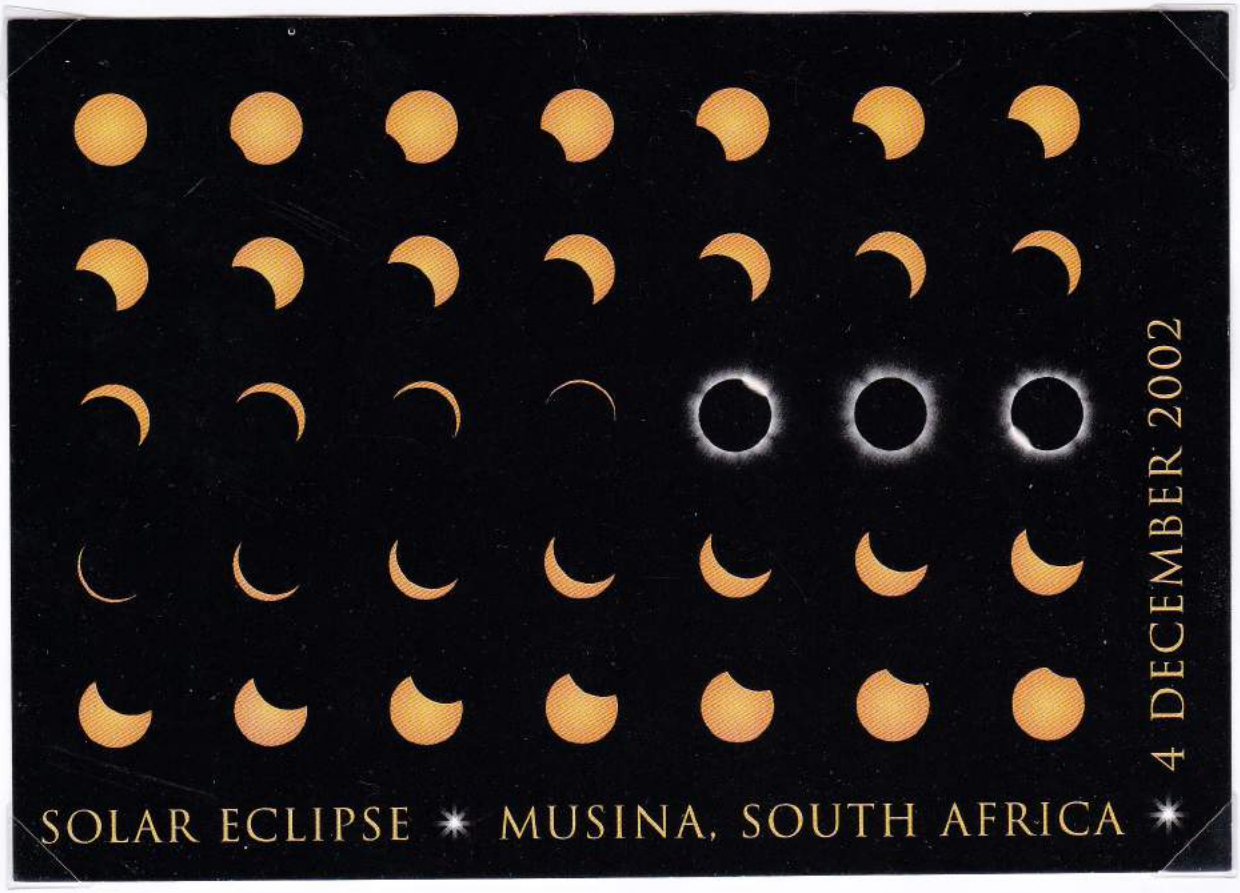
On 9 October 2002 a stamp and miniature sheet showing World Post day, with the miniature sheet reflecting linear images of communications from a quill pen to satellite communications.



On 4 December 2002 a Solar eclipse was observed at Musina, the northern most town in South Africa. This eclipse traversed the Atlantic Ocean, Angola, south-western tip of Zambia, Botswana, Zimbabwe, the Northern Province of SA and Mozambique. Reflected on the minisheet issed e FDC is the moment of total eclipse as it would have been seen at Musina.



The postcard shows the full spectrum from uncovered to covered back to uncovered



From 2000 onwards the construction of the Southern African Large Telescope (SALT) commenced and South Africa also submitted a bid to host the data-collecting Square Kilometer Array (SKA).

SALT is an optical telescope designed mainly for spectroscopy, and is the largest optical telescope in the Southern Hemisphere. It is located close to the town of Sutherland in the semi-desert region of the Karoo, South Africa. It is a facility of the South African Astronomical Observatory, the national optical observatory of South Africa. A set of 5 stamps in a strip were issued on 1 December 2004 reflecting SALT.

New Zealand also issued a stamp depicting SALT as well as the Large Magellenic Cloud, one of our Milky Way's companion Galaxies.

First light with the full mirror on SALT was declared on 1 September 2005 with 1 arc second resolution images of globular cluster 47 Tucanae, open cluster NGC 6152, spiral galaxy NGC 6744, and the Lagoon Nebula being obtained. The official opening by President Thabo Mbeki took place during the inauguration ceremony on 10 November 2005.

South Africa contributed about a third of the total of $36 million USD that will finance SALT for its first 10 years ($20 million for the construction of the telescope, $6 million for instruments, $10 million for operations). The rest was contributed by the other partners - Germany, Poland, the United States, the United Kingdom and New Zealand.

South African had it's second satellite (SumbandileSat) launched on 17 September 2009 from the Baikonur Cosmodrome in Kazakhstan

SumbandilaSat is sponsored by the Department of Science and Technology and is being built at SunSpace in co-operation with the University of Stellenbosch. The amateur payload will offer similar activities than that of SUNSAT but implemented in a new innovative way.

The naming of the satellite in itself is an interesting story. A competition was held amongst high school students. Entries in various languages were received but ultimately the Venda language version was chosen "Sumbandila". It means showing or pointing the way. Freely translated into English *"Pathfinder"*. Sumbandila is a very appropriate name for a satellite project that is paving the way for a number of satellites planned for launch over the next few years. Namibia recently requested & received photo images taken by SumbandileSat of the Oshakati area during the annual flooding

The 3 stamps above show the satellite in development, the Hartebeesthoek Tracking Station and lastly the satellite in orbit.

In October 2011 (3rd to 7th) the annual International Astronautical Congress (IAC) took place in Cape Town, South Africa. This congress had as a theme "African Astronaissance" and offered up the opportunity to report on and debate the benefits of space science and technology for both Africa and the world. The SA Post Office issued a mini-sheet and cover using images designed by the IAC to commemorate the first International Astronautical Congress ever to be held on the African continent.

South Africa was awarded the majority of the Square Kilometre Array (SKA) which will be the world's largest and most sensitive radio telescope, with Australia getting the rest.

To the right is the Karoo Array Telescope (KAT 7) with 7 dishes, which is a precursor to the Meerkat array (which will consist of 64 dishes).

Following this the 3000+ dishes of the SKA will be built starting in 2016, with some of these dishes also to be situated in various neighbouring countries to South Afrcia and Australia.

The End

A grateful South African Philately Club thanks

John Kollen

for sharing his collection with us.

15/12/2020

If you have questions and want to contact John, please contact:

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www.southafricanphilatelyclub.com