

# Safety instructions

-- Yes, this document is lengthy. Nevertheless, read it before trips to Namibia. Major updates and changes are indicated. If you have questions, ask (M. Panter, W. Hofmann, or T. Hanke on site)!

Shortcut to Emergency instructions

## Preamble

**Traveling to Namibia and working on the H.E.S.S. site, the primary consideration has to be the safety and health of all persons involved. All other issues, such as the protection of property or of the instruments as well as their performance are secondary.**

This page lists some general safety precautions for Namibia, as well as specific safety aspects of the H.E.S.S. experiment and Göllschau site. It is recommended to read additional information concerning travel, health, and safety in Namibia as available, e.g., on the pages of the German Foreign Office and of the [German Embassy in Windhoek](#). See especially the medical information by the German Foreign Office, the Foreign and Commonwealth Office travel advice and the excellent pages of MDTravelHealth. Beyond the specific issues related to Namibia or H.E.S.S., the usual safety regulations and standards apply, as defined by the home laboratories (see e.g. [MPIK safety pages](#) and [MPIK safety information system](#)).

Personnel traveling to Namibia to work on the H.E.S.S. site have to acknowledge that they have read the instructions, and will comply. MPIK personnel are asked to sign the [form](#) before each trip, and return it to Mrs. Crespo. Upon arriving on the H.E.S.S. site, ask the Technical Manager, Toni Hanke, for a detailed safety briefing in case this is your first visit, and for an update in case of repeated visits.

**The Technical Coordinator, M. Panter, is responsible for H.E.S.S. safety. Locally responsible for safety on the H.E.S.S. site are Toni Hanke with Frederick van Greunen as deputy. Responsible for safety on the farm is J. Craz. Their instructions concerning work and safety on the site have to be followed.**

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## Health care and prevention in Namibia, your health insurance

No specific health prevention or vaccinations are required when working in Windhoek, on Göllschau, or in the central and southern parts of Namibia. Malaria is not a problem in this area; Malaria prevention may be required when visiting the northern parts of Namibia, such as the Etosha pan, in particular in the rainy season. In such cases, the relevant information can be obtained from specialists at home, or from pharmacists in Windhoek. See also the [information page](#) of the Namibian Ministry of Health and Social Services.

The [German Foreign Office](#) recommends for Namibia visits the "standard" set of vaccinations, namely Diphtheria, Polio and Hepatitis A, plus Tetanus. We recommend H.E.S.S. personnel in Namibia to follow this suggestion. For MPIK personnel, MPIK will cover the costs of the vaccinations.

Medical support in the Windhoek area is generally quite good; according to the German Embassy, the hospitals are on European standards, although private hospitals should be preferred. A transport back to Europe is usually not required, nor recommended. A list of medical doctors follows under "emergencies".

### Your health insurance

Not every health insurance includes business trips! Please, ask your insurance about what they will cover, well before you go to work in Namibia.

In Namibia hospitals normally ask about the insurance coverage before they accept a person for medical treatment. If you care for good treatment and the freedom to choose a doctor, you should have the relevant dates of your insurance at hand while you are in need of medical help. According to the service contract with the family Craz, Adele Craz is in charge of first aid on site. This includes organising the transfer to the proper hospital. Therefore she needs to have all relevant information at hand at the time you enter the country. Then she can be most effective in case of an emergency and you can be confident that you will be treated in the way you expect to be.

Adele Craz will ask everybody who will be going on site about his insurance company, an identification number with this company and possible conditions on the way a rescue or a treatment will be covered. It is obviously to your own personal benefit to provide these data and I ask you to be cooperative.

## Emergencies

In case of emergencies, contact T. Hanke, the site manager, or J. Cranz (phone numbers at the end of this document); they will take the necessary steps. Phone numbers of neighbouring farms can be found [here](#). For general information on how to proceed in emergencies, see also the [MPIK safety pages](#) and [MPIK safety information system](#) .

#### Accidents, medical emergencies:

In case of light injuries the injured person should be taken to Windhoek to a physician or hospital. **In critical cases, contact the air rescue service EMED rescue 24 on the numbers 081 924 (inside Namibia) and +264 61 411 600.** (To prevent abuse, the company will verify calls with Joachim or Adele Cranz or Toni Hanke.) They may also require coordinates:

- Member Nr:
- Company name: HESS
- On the street (C26) near the farm house of Göllschau: 23°16'58" S, 16 ° 32'19" E
- H.E.S.S. site: 23 ° 16'17" S, 16 ° 29'58" E

First-aid kits are available in the buildings. Useful first aid web pages: Mayo Clinic.

**Since AIDS is quite common in Namibia, helpers should avoid contact with body liquids of injured persons, and use gloves when rendering assistance.** The [German Foreign Office](#) also [warns concerning blood transfers](#).

The following hospital was recommended to us:

- MEDI-CLINIC Windhoek, Heliodoor St., Eros Park, Tel. 061- 222687, Fax 220027

Physicians include (all in the Windhoek region, 061):

- Dr. Gerhard Scholz, general practitioner, MEDI-CLINIC Windhoek, Tel. 222902, Fax 258937
- Dr. Rainer Roxin, general practitioner, surgeon, Roman Catholic Hospital, Windhoek, Tel. 237237, 223894, Fax 223896
- Dr. Munz, Dentist, Carl List Haus, 236520

More physicians can be found on the [list provided by the German Embassy](#) .

#### Fire:

Fire extinguishers and fire hoses are available in all buildings. On arrival familiarise yourself with their position and use. In case of fire:

- Safety of persons is priority!
- Notify all persons in the building as well as Toni Hanke or Joachim Cranz; if help is needed, see telephone list provided [below](#).
- In case the fire is in an electrical installation, switch off the circuit if possible. Beware of high voltages in electrical equipment and in particular in the telescope cameras.
- Use the closest extinguisher and make an attempt to put out the fire.

#### Bush fire:

##### Causes

- Due to the prevalent extremely dry conditions the grass can easily be ignited.
- Main causes are human negligence and "dry" lightning (without rain).
- A carelessly dropped smouldering match or cigarette ash may develop into a bush fire long after you have left the scene.

##### Prevention

- Smoke in designated areas only.
- Don't throw away cigarette butts.
- Don't throw hot ash out of your car's window.
- Don't light campfires.

##### Danger

- A distant bush fire can more easily be identified by light grey smoke than by visible flames.
- Fire can spread rapidly by strong winds and on steep mountain gradients.
- Spots of bushes with dense and dry vegetation are the most dangerous areas.
- However, the conditions around the HESS site generally only allow relatively harmless fires. Chances that the telescopes or the buildings would be strongly affected are relatively slim. It should be safe to stay inside the buildings. Cars standing on the interlocked parking areas should also be safe.
- When confronted by a fire while being outside, it is normally easy to run away from it. Should the fire move too fast or surround you, jump through it at a spot with light vegetation (the fire line is normally only 1-2 meters wide) onto the already burnt down area and move out of the smoke.

##### Fire fighting

- Safety of persons is priority!
- Apart from possible damage to people and the HESS installations, bush fires can destroy large habitats for wildlife and livestock and threaten the livelihood of farmers. You are therefore encouraged to cooperate in the prevention and control.
- Firstly notify all people on site and the surrounding farmers, *even if the fire seems to be very far away*. A telephone list is provided [below](#).
- Every building and telescope is equipped with fire hoses and extinguishers. On arrival familiarise yourself with their position and use.
- In the Control Building there are some spray guns and fire whips to strike at flames of a bush fire.
- If you decide to help fire fighting, consider the following:

- Instead of going on your own, rather join the experienced locals in their endeavours to control the fire. Stay together as a group.
- Don't try to extinguish a fire in densely vegetated spots, e.g. bushes. It is easier to stop it from spreading in the open grassy areas.
- Consider the direction of the wind and try to avoid the smoke.
- The water reservoir on site has very limited capacity. Water should be kept for use by experienced fire troops. The water hoses at the buildings may only be used to extinguish flames and not to sprinkle the area as a preventative measure long before the fire arrives.

List of H.E.S.S. telephone numbers			
Fax:	+264(0)62 572 176		
Code	+264(0)62		5-Feb-21
Number	Internal	Office/Room	
507300	300	Switchboard	
507301	301	Control Room	
507302	302	Control Room	
507303	303	Control Room	
507304	304	Control Room	
507306	306	Site Manager	Toni
507307	307	Electronic Workshop	
507308	308	Mechanical Workshop	
507320	320	Residence Lounge	
507321	321	Residence Room #1	
507322	322	Residence Room #2	
507323	323	Residence Room #3	
507324	324	Residence Room #4	
507325	325	Residence Room #5	Volker
507326	326	Residence Room #6	Frikkie
507327	327	Residence Room #7	
507328	328	Residence Lounge (Computer)	
507330	330	Residence Site Manager	Toni Pvt
507331	331	Residence Site Manager	Toni Flat
507340	340	HESS Cleaner	Erna
507341	341	HESS Caretaker	Atmore
507350	350	ATOM	
507351	351	Rotse	
507352	352	HAT South	
507360	360	CT5 Camera Shed Office/Workshop	
507361	361	CT5 Camera Shed Mezzanine Floor	
507362	362	CT5 West Electronic Container	
507363	363	CT5 East Electronic Container	
507380	380	Gigaset Site Phones/Computer Farm	Frikkie

### List of telephone numbers of neighbours (order of priority)

Name	Farm name	Explanation	Telephone land line	Mobile telephone
Atmore	HESS site	the watchman on site	Extension 341	081 2007530
Toni Hanke	HESS site	site manager	Extension 0	081 2802502
Joachim Cranz	Göllschau and Isabis	the local farmer, resident at Isabis, the neighboring farm to the South	572133	081 1245588, 081 2734525

Leon	Göllschau	employee at local farm		081 3413688
Winston Retief	Weissenfels	neighboring farm to the west	572112	081 1241818
Adele Cranz	Göllschau and Isabis	local farmer's wife	572133	081 2734525
Anton Loubser	Friedental	neighboring farm to the north	572131	081 1274450, 081 2768013
Jochen Witte	Ankerplatz	farm further west	572139	081 2785851, 081 2569852
Waltraud Straube	Hakos	farm further west	572111	081 2774535
Friedhelm Hund				081 3004842
Deon Swarts	Gamsberg	farm further west	572109	081 1246899
Bernhard Schurz	Valencia	farm further north-west	572137	081 2409177
van Heerden	Weener	farm further west	572108	081 2862373
Hans Scholz	Naos	farm further north	572107	
Mrs Dodds	Verdwaal	farm further north	572138	

## General safety in Namibia

Crime rates in Namibia are increasing, but heavy crimes are relatively rare. Standard safety precautions in and around Windhoek are the same as in other rural areas:

- Do not leave valuables in the car, or better, do not leave anything visible in the car
- When driving in the city, lock the doors
- Park in supervised parking areas only; they are available at many restaurants and shops
- Do not exhibit your money or valuables
- Avoid slum areas
- Larger groups are safer
- If attacked, give your money, not your life

In general, take any precautions you would in a large city with petty crime. Be aware of yourself and respectful of your surroundings.

## Driving in Namibia

Driving in Namibia has specific hazards for Europeans, including left-hand traffic, gravel roads, and frequent animals on country roads. If you feel uncomfortable driving in Namibia, the service contract with Cranz includes provision for transport to and from Windhoek or the airport, or you may be able to arrange pick-up at the airport by local H.E.S.S. personnel. A shuttle service between Windhoek and the airport is available, leaving from the big hotels.

 Note that a car has to be on site at all times in case of emergencies, so check with your fellow shifters.

Note:

- The maximum allowed speed in Namibia is 120 km/h outside cities, and 60 km/h inside cities.
- Use of safety belts is required.
- Driving under the influence of (any amount of) alcohol is prohibited.
- Watch for animals crossing roads, adapt your speed accordingly.

Vehicles with four-wheel drive or large ground clearance generally have a high center of gravity and are easily overturned. A significant fraction of rental cars suffers this fate. Be aware that such a high and heavy vehicle behaves rather different from the cars you may be used to! On the other hand, such larger vehicles are much more comfortable on gravel road and they offer better protection in collisions with large animals such as Kudus.

A specific danger are the long gravel roads, such as the one leading to the farm Göllschau. Tires have much less traction on gravel roads, and the accident rate of tourists on such roads is very high. Experience shows that the speed tends to increase after a while; at high speeds, when forced to leave the center of the road or in curves, the car is easily overturned. **It is strongly advised not to exceed 80 km/h on gravel roads.** Don't get tempted if you see experienced locals drive much faster than you! Of course, parts of the road may require even lower speeds. Avoid the sloping side bands of the roads. When oncoming traffic is approaching, slow down; watch for gravel scattered up, which may hit your car and windshield. Be aware of river beds crossing the street; they are frequently covered with a deep layer of sand. Slow down when approaching bridges and farm gates.

During the rainy seasons, and in particular during a rain, there may be very strong streams of water in river beds. Do not attempt to cross, unless it is clearly possible without any risk! Also, the street may be completely flooded. Waiting a few hours will usually fix the problem. Driving back from Göllschau to the airport in the rainy season, one should allow sufficient extra time to cope with flooding.

**Driving at night time on country and gravel roads should be avoided;** in particular at night and during sunset and sunrise there is a large risk of animals crossing the road. Even the locals try not to drive at nighttime on the countryside. If forced to drive, drive slowly and carefully. If you see animals on or near the road, slow down. Be aware that most animals come in herds; if a Kudu crosses the road, expect more to follow during the following minutes.

Note that some of the passes on the gravel roads from Windhoek to the coast are very steep, and may even require 4WD. Inquire about the state of roads before leaving.

# Environmental hazards in Namibia

Namibia is not a dangerous country, in the sense that really dangerous animals are rare and usually avoid people. Nevertheless, caution should be taken in particular when working in the field, or at night.

## Animals:

Game and wild animals are shy and avoid humans. Nevertheless, it is strongly advised to keep a safe distance. Even cattle should be approached cautiously. "Tame" animals might have rabies. Don't touch dead animals.

Some specific points

- Be careful when lifting stones; there could be a (rare) scorpion hidden underneath. Turn the stone around with your boot or a stick, do not grab it with your hands.
- Stay clear of the large bird's nests; sometimes snakes enter the nests and they might drop down on you.
- Red wasps are very aggressive and their stings can be quite painful; stay clear!
- Insects often hide in cavities of the telescope structure, cable channels etc. If you cannot see into a cavity, be careful, and wear gloves. There have been beehives on or near the telescopes; if you notice a beehive, stay clear and inform the site manager..

## Snakes are of particular concern:

Like in many areas of Namibia, there are poisonous snakes in the Göllschau area. Cobras and puff adders were seen on the site. Most snakes avoid humans; an exception are puff adders. Therefore:

- Stay on the paths and avoid tall grass
- Noise and loud footsteps warn snakes and give them a chance to get out of your path
- At night, use a flashlight to watch the ground
- In case you see or hear a snake, retreat immediately; if inside a building, alert the local crew
- To avoid unsolicited company, close the doors of cars and rooms

## Plants:

At least in the Göllschau region, there is no known danger from poisonous plants etc.

## Rain:

See section on driving in Namibia. Rain is rare, but may be extremely heavy for short periods, resulting in severe flooding and strong currents. During the rainy season, do not park / stay / camp in river beds. Do not try to cross flooded river beds, unless you are very sure about the speed of the water flow, the depth of the water, and the consistency of the ground. When stuck with a car in a river bed, the current will remove the material underneath the tires and cause the car to sink deeper, and possibly to topple over. In case of doubt, wait; the flooding will usually subside within a few hours.

## Sun:

The solar irradiation and in particular the UV content is much stronger in Namibia, both due to the latitude and due to the height. Even a short time in the sun can cause serious sunburn. It is good practice to always wear a hat, when working in the open. In particular if you are not sure how much sun your skin will tolerate, use a sunscreen with a high protection factor (15-25), protect your neck from the sun and wear shirts with long sleeves.

## Fire hazard

Vegetation is normally very dry and will ignite easily. **Don't smoke in the open and never (!) throw away ignited cigarette stubs and matches. Open camp fires are prohibited on the H.E.S.S. site.**

# Living and working on Göllschau

Even though MPIK has leased the site from the farmer, we should consider ourselves as guests on the farm, respect the privacy of the farmer and minimise the impact H.E.S.S. construction and operation have on the rest of the farm. In all matters not related to the H.E.S.S. hardware and H.E.S.S. operation, the authority of the farmer should be respected, both in his capacity as the owner of Göllschau and as the site manager in charge of site issues and infrastructure.

Note that the H.E.S.S. site is not open to the public. Only H.E.S.S. personnel, personal guests, and specifically arranged tours are allowed to enter the H.E.S.S. site. H.E.S.S. members inviting guests to the site are responsible to ensure that their guests comply with regulations. Camping on the H.E.S.S. site is in general not allowed.

Open fires are not allowed on the H.E.S.S. site; neither is collecting firewood. A barbecue is installed in the residence building.

Garbage should be deposited exclusively in designated garbage bins. Do not leave food out in the open, in particular over night. It will attract animals.

Feeding of wild animals is strictly forbidden. Animals are a potential problem both for the telescopes and for the residence, and one must avoid attracting them.

Do not collect plants.

Hunting and carrying of weapons is strictly forbidden on the H.E.S.S. site. Only guard personnel may carry weapons.

For safety reasons, and since there are no permanent "private" rooms on the H.E.S.S. site, smoking is prohibited inside all buildings, and inside the electronics containers of the telescopes. Please go outside to smoke, but stay on the paved areas around the buildings. Make sure that you safely extinguish your cigarette afterwards; don't throw stubs and matches away. Depending on the seasons, the fire hazard may be large, and once started, it is virtually impossible to extinguish a bush fire.

Water is a precious (and expensive) commodity in Namibia. Conserve water where possible. Don't leave taps running while brushing teeth, washing dishes etc. Don't shower excessively.

On farm roads, drive slowly (also to minimise dust), and watch out for animals. Stay on the designated roads to minimise additional damage and erosion. Only those farm roads leading directly to and from the H.E.S.S. site may be used. Do not walk or drive on the farm outside the [H.E.S.S. area](#). If you have to open gates, close them behind you. Park outside the telescope area, near the control building; do not drive to the telescopes unless unavoidable. In particular in the vicinity of the telescopes, it is important to keep the flora covering the surface intact and to minimise dust.

**Rules for working in the H.E.S.S. area are spelled out [below](#).**

## Operating H.E.S.S. cars, mobile equipment and workshop equipment

### Cars:

For reasons related to insurance coverage, the MPIK car provided for H.E.S.S. can only be used if

- you have a drivers licence valid in Namibia (e.g., an international drivers licence) and
- you are MPIK personnel or registered MPIK guest, or have special approval by the MPIK administration. Only Toni and Sonja Hanke and Frikkie van Greunen are registered.

The MPIK car may only be used for official duties. This includes trips to Windhoek to purchase supplies, and may include trips to Walvis Bay/Swakopmund in H.E.S.S.-related business.

Keys for the MPIK H.E.S.S. car are available from the local technical crew. For trips leaving Göllschau, it is required to sign out, and to record the trip dates in the travel log in the car. If you notice problems with a car, please contact J. Cranz (the service contract includes car maintenance) or T. Hanke. In case of safety-relevant problems (brakes, tires, etc.), do not use the car, and post a note clearly visible in the car in addition to alerting J. Cranz and T. Hanke.

In peak periods, additional rental cars may be available. Unless specifically agreed by the rental agency (in writing), rental cars may only be used by persons listed as drivers in the rental agreement.

Medical emergencies may warrant exceptions from these regulations. Even under these circumstances, you must have a drivers license in order to drive cars.

### Mobile equipment (Fork lift, cherry picker):

MPIK provides heavy mobile equipment, such as a fork lift and two cherry pickers used to mount and maintain mirrors on the telescopes. Operating this equipment is non-trivial and requires specific training; significant danger for persons and equipment can arise if load limits etc. are not watched. **The fork lift and the cherry picker may only be driven by persons who are properly trained; the training has to be documented. Workshop personnel of MPIK, Michael Panter, Toni Hanke and Frikkie van Greunen are trained. These people can train another person from the H.E.S.S. collaboration in case of need. This holds only for a well planned long use. Otherwise the locals will help.**

**Do not use the equipment unless a second person is nearby and able to assist in emergencies.**

### Workshop equipment:

Various machines and tools available in the H.E.S.S. workshops are potentially dangerous, if not used with care and experience. This concerns e.g. saws, heavy drilling equipment, and in particular the milling machine and the turning lathe. Do not use such equipment unless familiar with it. Use of safety equipment is mandatory, such as safety glasses for all metal cutting machines, and safety shoes when working with heavy parts or lifting equipment.

**Specifically, the milling machine and the turning lathe may only be used with knowledge and agreement of the local technical staff and by persons who are properly trained; the training has to be documented. Again only the workshop personnel of MPIK and Frikkie van Greunen are familiar with the machines and can instruct qualified persons within the H.E.S.S.-collaboration.**

**Do not use workshop equipment unless a second person is nearby and able to assist in emergencies.**

## Working in the H.E.S.S. area, operation of the H.E.S.S. telescopes, and maintenance and repair

The operation of the telescope is described in specific shift manuals; here only safety-related issues are addressed. With their large moving masses, their height and their electrical systems, the telescopes need to be handled with care and caution.

### Strict rules

- **When operating the telescopes or carrying out installation work or maintenance work, or operation workshop equipment, a second person must be present on the telescope site, and be informed.**
- **When working in the telescope structure or under the dish, you must make sure the drive system is fully disabled.**
- **When working in the telescope structure, under the dish, or with or under the cherry picker, you must wear a hard hat.**

- You are not allowed to climb up into the telescopes (elevation towers dish) unless you have documented training for working at heights including a medical examination or a trained person has approved and is accompanying you. A harness has to be used. Make sure it is not outdated. In any case coordinate your operation with the local crew. Thomas Wagner from the MPIK is responsible for all equipment and will give advice on training. The only exceptions are the stairs on CT5 leading to the 10m platforms where a shifter might have to work on the elevation drives in case of emergency.
- You are not allowed to climb up into the radio tower.
- When working up in the telescope, e.g. in the back side of telescope dish, you must wear a safety harness and engage the safety line in the handrails. In case you have problems with heights, do not participate in such tasks.
- When participating in the installation of heavy parts, wear safety shoes and other safety equipment as appropriate.
- Unless directly involved, stay clear of installation / maintenance crews and their lifting equipment; if you want to watch, do so from a safe distance, where you do not interfere with their work.
- Heavy equipment, in particular the fork lift and the cherry picker, must only be operated by experts with documented training.
- The cherry picker cannot be used as a crane, to lift equipment.

#### **General precautions:**

When operating the telescopes, or carrying out installation work or maintenance work, a second person must be present on the telescope site. It is not sufficient to have a second person in the residence or elsewhere on the farm. If not in sight, make sure that the other person is kept informed about your location and activity. Whenever the telescopes are operating during nighttime, personnel must be present in the control room at all time.

The fenced in telescope area must only be entered by H.E.S.S. personnel familiar with the safety instructions; visitors need to be accompanied by H.E.S.S. personnel. A hard hat must be worn underneath and in the telescopes, to protect against (unlikely) events such as parts breaking off mirrors and falling down. Banging your head on the structure of a telescope might be a danger as well. It is recommended to wear a hard hat whenever entering the fenced in area. When outside at night time, always carry a flash light, stay on the trails, and watch your path for snakes etc. (see also above).

During high winds - around 50 km/h and higher - do not enter the fenced in area and in particular, stay away from telescopes. During operation, telescopes must be parked immediately when wind speeds approach 50 km/h. In case of problems, do not approach the telescopes; wait for the winds to subside.

Whenever the telescope drive systems are enabled, stay away from the telescopes, as indicated below. In particular, be sure to also clear the area under the camera, since forgotten screws etc. may fall down.

Familiarise yourself with the locations of the emergency-off buttons for the telescopes, in the electronics hut and inside and outside the camera shed.

According to German regulations, daily working time must not exceed 10 h, and a 30 min. break is required after 6 h of work. These regulations also apply to scientists on shift duty etc. Organise long shifts such that the person in charge alternates and the second person has a chance to relax and take a break (while remaining in the control building, to be available in case of emergencies).

Any maintenance and repair work must only be carried out by, or under the supervision and instruction of, experienced experts. As a normal shift person, do not attempt to repair systems you are not familiar with. Inform the local technical crew about any technical problems and about maintenance and repairs you are planning to carry out, and follow their instructions. Never attempt to carry out repair work at night time, beyond simply resetting the telescope power and control system.

When enabling the telescope drive for tests or measurements, make sure that no other work is in progress on or near the telescopes, and that other personnel in the area is informed. Before working near or on the telescope, verify that the drive system is disabled.

The risk of accidents is particularly high during installation and maintenance phases, often with many people on site, working in and on the telescope structure.

#### **Maintenance of the telescopes**

##### **Maintenance and repair of the telescope steel structure, of mirrors and of the drive systems:**

During the maintenance of a telescope and during all work or maintenance related to the telescope drive systems, extreme care is required in handling and moving the telescope, since not all safety interlocks may be active. During this phase, the telescopes should be moved exclusively by the drive experts. Note that an imbalance can easily result in forces of several tons, even given the large lever arms of the drive systems.

Whenever a telescope is not fully balanced, it has to be secured in position in a suitable way, e.g. with chains or locks. Before these are removed, the imbalance has to be monitored, and it must be sure that the brakes can hold the remaining imbalance. The friction drives of the HESS I telescopes are more critical than at CT5. Under these conditions, the telescope must only be moved by experts, and personnel not directly required in the process have to clear the area.

##### **Electrical systems and their hazards:**

The drive control systems of the telescopes involve high (line) voltages and high currents. Only properly trained personnel (electricians or MPIK personnel familiar with the system) should connect/disconnect motors or work inside the switchboard.

The camera power supply system involves high (300 V DC) voltages and currents. Only trained personnel should work on the system.

Working on PCs, networking components and other electrical equipment, follow standard laboratory safety practice.

##### **Mechanical systems and their hazards:**

As stated above, the entire telescope area should be cleared when telescopes move. Tests in particular of the drive system and adjustment of position switches may require exceptions from this rule. While the telescopes usually do not move quickly, one must nevertheless be very careful when testing or aligning drive components; the same safety rules apply as when operating other machinery with moving parts. A second person should be positioned near an emergency-off button. Particular care and caution is required in the areas of the drive systems, bearings, and cable chains.

##### **Lightning hazard:**

Telescopes, buildings and power distribution lines have extensive lightning protection systems. When thunderstorms approach or a danger of lightning strikes exists, the telescope must be parked for best protection, and personnel should retreat to the control building. If this is not possible, the electronics container or cars should be relatively safe. Stay clear of the power distribution panels.

## Comments and suggestions

These safety regulations cannot be expected to cover all potential risks. Use your common sense to avoid risks not spelled out here, and observe the safety rules practiced at your home institution. If you have suggestions how to improve or augment this document, please contact Prof. W. Hofmann, Dr. M. Panter or Dr. G. Hermann (+49 6221 516 -330, -273, -528).

## Important phone numbers

- Broadcast (rings control room, Toni Hanke's office and apartment, ...) +264 (0)62 507 306
- Control room +264 (0)62 507 301, +264 (0)62 507 302, +264 (0)62 507 303, +49 (0)6221 516 132 (Internet connection with MPIK Heidelberg)
- [Toni Hanke](#) (Technical site manager)
  - Cell phone: +264 (0)81 2802502
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- [Dr. Michael Panter](#) (MPIK coordinator for H.E.S.S. site): +49 (0)6221 516 273
- German Embassy: +264 (0)61 273100
- **EMED rescue 24 on the numbers 081 924 (Namibia) or +264 61 411 600 (International)**
- **Member Number EVAC31, Company Name: HESS PROJECT**
- MEDI-CLINIC Windhoek: +264 (0)61 222687

## Additional information (by the German Embassy in Namibia, etc.)

### Information leaflets

- [Wichtige allgemeine Hinweise](#) (Source: German Embassy)
- [Merkblatt zur Geldbeschaffung in Namibia](#) bei Verlust von Bargeld, Schecks, Kreditkarten (Source: German Embassy)
- [Wichtige Ärzte und medizinischen Institutionen](#) in Windhoek (Source: German Embassy)
- [Wichtige Telefonnummern](#) (Source: German Embassy)
- [Malaria prevention in Namibia](#) (Quelle: [Ministry of Health and Social Services](#))