All visitors to the Chajnantor Observatory (CO) and all working at the site are required to follow these SAFETY REGULATIONS.

A. BEFORE TRAVELLING TO SAN PEDRO

Notify the CO Administrator in San Pedro (Lorena Toro, e-mail: cbichile@astro.caltech.edu) before your trip to San Pedro de Atacama.

To prepare for work at high altitudes and for driving in Chile:

1. All visitors to the CO must have had a medical examination and been certified for work at high altitude (5000 m).

2. Visitors to Chile who intend to drive must have a valid international driver’s licence.

B. On Arrival in San Pedro

Check in with Lorena Toro, or with one of the CO engineers, and show her your international driving license (or Chilean driving license).

C. Before travelling to the CO site

i) Visitors and workers arriving in San Pedro must sleep at least one night in San Pedro before visiting the CO site.

ii) The night before going up to the mountain, do not drink alcohol for at least 9 hours before your scheduled departure time.

iii) Do not visit the CO if you are not feeling well, especially if you have a cold or a respiratory problem, as the stresses of high altitude can aggravate your condition.

iii) A minimum of two people is required for all trips between San Pedro and the CO.

D. Use of CO vehicles

I. Before departing from San Pedro you must:

i) check that your international (or Chilean) driver’s license is valid.
ii) the driver is required to report to the assigned contact person in San Pedro both the departure time and the estimated arrival time.

iii) check the fuel and coolant level in your truck(s)

iv) check first aid kits and other safety equipment in vehicles

v) make sure that there are enough oxygen bottles in the car.

vi) always carry drinking water in the car.

vii) new drivers must ask how to use the 4-wheel drive vehicle.

viii) Note that all CO vehicle use must be reported on the sheets provided.

We rely on the first aid equipment, which must always be carried by all vehicles. Vehicles are supplied with a first aid kit equipped following the recommendations of ACHS. It is primarily intended for first aid treatment in case of an accident. All vehicles used in operations are permanently equipped with additional gear to deal with the difficulties that can be found on the way to the site.

<table>
<thead>
<tr>
<th>First aid basic kit</th>
<th>Additional Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adhesive bandage</td>
<td>Fire extinguisher</td>
</tr>
<tr>
<td>Cotton</td>
<td>Second spare tire</td>
</tr>
<tr>
<td>Sterile gauze dressing pads</td>
<td>Emergency light</td>
</tr>
<tr>
<td>Elastic bandage 6 &amp; 8 cm</td>
<td>Towing cord</td>
</tr>
<tr>
<td>Fixing bandage 6 &amp; 8 cm</td>
<td>Snow chains</td>
</tr>
<tr>
<td>Sterile gauze dressing pads</td>
<td>Cord attachments</td>
</tr>
<tr>
<td>Immobilizing bandage</td>
<td>Battery jumper cables</td>
</tr>
<tr>
<td>Antiseptic cleansing wipe</td>
<td>Shovel</td>
</tr>
<tr>
<td>Vinyl globes</td>
<td></td>
</tr>
<tr>
<td>Eye wash</td>
<td></td>
</tr>
<tr>
<td>Scissors</td>
<td></td>
</tr>
<tr>
<td>Tweezers</td>
<td></td>
</tr>
<tr>
<td>Haemostatic tweezers.</td>
<td></td>
</tr>
</tbody>
</table>

**Medicines:**

- Aspirin
- Hydrogen peroxide
- Mucoine (antacid)
- Naprogesic (anti-inflammatory – analgesic)
- Serum
- paracetomol
- Povidone – iodine
- Perenteryl (antidiarrheal)
- Viadil (antispasmodic)
II. Number of vehicles:

i) Roads sufficiently clear of snow to drive to the site without off-roading:

When the roads are clear of snow it is permitted to drive one truck to the site, but only if you arrange to call back to San Pedro once you have arrived safely at the site (for going to the site), and, for travelling from the site to San Pedro, only if you call ahead to San Pedro to inform a contact person of your expected arrival time in San Pedro.

ii) Roads not sufficiently clear of snow to drive to the site without off-roading:

If the roads are either hazardous or blocked by snow, it is not permitted for a single vehicle to drive to or from the site. However, if you happen to be at the site with a single vehicle and it happens to snow before you can return to San Pedro, then it is permitted to drive from the site to San Pedro provided:

a) you first inform a contact person in San Pedro of your expected arrival time in San Pedro

b) you check that the car is outfitted with water, food, chains, shovel, first aid kit and oxygen.

c) you only off-road when absolutely necessary

d) you stay close to the road – you should never deviate by more than 1 km from the road, and you should attempt at all times to remain within visual contact of the road.

III. Getting Stuck

i) Do not walk out of sight of the CO site or your vehicle on your own.

ii) Be aware that there are many poorly defined roads in the vicinity of the CO and finding the correct route can be difficult, especially in poor visibility.

Dont Forget:
In case of a severe snowstorm blocked by snow, people have to stay inside the containers. A permanent stock of food is kept at the site, as well as an emergency box with imperishable supplies. In case of a power cut which produces low temperatures inside the containers, a portable gas stove, gas heater, extra clothes, blankets, and sleeping bags are located inside.

IV. In case of a car accident
Remain at the site of the accident and try to get help as soon as possible. If possible, contact the San Pedro first aid station, police or fire brigade. Ensure that you and your party are kept warm and drink plenty of water.

**E. Fire fighting**

Fire extinguishers are located in all major observatory structures. They are of the CO2 type.

**In case of fire**
- If it is possible to control the fire, always use a fire extinguisher.
- If the fire is out of control, evacuate everybody to a clearly designated safety area.
- Keep phone lines and radio channels open.
- Call the San Pedro fire brigade and ambulance (if somebody is hurt).
- If there is a fire at the generators, control the fire using the fire extinguisher at the generator sites. If the fire is out of control evacuate. Call the San Pedro fire brigade.

**F. Use of Oxygen**

All vehicles going to or coming from the CBI telescope site carry a sufficient amount of oxygen bottles ready to be used in case of need. All people working at the CO must have a portable oxygen system. The CO administrator, or one of the CO technicians or engineers can help to set up your system and demonstrate how it works.

**WHEN WORKING OUTSIDE OF THE CONTROL ROOM (CO SITE), ALWAYS CARRY & USE YOUR OXYGEN!**

**G. Ultraviolet radiation from the sun**

Avoid direct exposure to the sun in the middle of the day, when the UV intensity is greatest. The ultraviolet (UV) radiation from the sun includes UVA (wavelength 315–400 nm) and UVB (280–315 nm) radiation, both of which are damaging to human skin and eyes. UVB radiation is particularly intense in summer and in the 4-hour period around solar noon. Wear clothing that covers arms and legs (clothing is UV-protective and generally more effective than even good-quality sunscreen) and a hat. It is recommended to wear UV-protective sunglasses. Apply a broad-spectrum sunscreen of sun protection factor (SPF) 25+ liberally on areas of the body not protected by clothing and reapply frequently. Check that medication being taken will not affect sensitivity to UV radiation. If adverse skin reactions have occurred previously, avoid any exposure to the sun and avoid any products that have previously caused the adverse reactions.

**H. Altitude Sickness: Types and Symptoms of Altitude Illness.**

*There are inherent risks in travelling at high altitude. This text is designed for general*
When visiting the CBI Project at Chajnantor site, which is located at an elevation of 5000 meters (16,500 feet), you should be prepared to recognize and respond to the symptoms of altitude illness caused by the lower level of oxygen available at high altitudes.

The symptoms of Acute Mountain Sickness (AMS) may include one or more of the following:
- headache
- insomnia
- irritability
- dizziness
- muscle aches
- fatigue
- loss of appetite
- nausea or vomiting
- swelling of the face, hands and feet.

If you experience any AMS symptoms, please inform CO personnel immediately and limit your activity level. Stay in the control building and keep using your portable oxygen system, drink plenty of water. If appropriate for your medical status, aspirin or ibuprofen can be used for headache. If symptoms become worse during the visit, it is very important to return to San Pedro as soon as possible. Your health is always the highest priority, regardless of what work is being done at the observatory, so do not hesitate to tell people that you are unwell. Please note that AMS often passes unrecognized by the victim, so that it is important to keep a watch on others at the CO, who might be experiencing AMS without realizing it. Any signs of incoherence or irritability should be reported immediately to the CO engineer or technician.

**High Altitude Cerebral Edema (HACE)**
Results from blood plasma being released into the cranial cavity. It is a worsening of AMS symptoms, and can lead to a loss of coordination as intracranial pressure increases, or loss of consciousness. Those affected may appear confused and begin to stumble or stagger. They can have severe headaches and incapacitating fatigue. This is a dangerous form of altitude sickness, and it can be life-threatening. It is crucial for the victim to descend and receive drug and oxygen treatment. Watch each other for symptoms, since victims may be unable to recognize the problem. People who have experienced HACE should never visit the CO.

**High Altitude Pulmonary Edema (HAPE)**
Is a buildup of fluid in the lungs that can occur along with HACE or as a separate illness. Those affected will be breathless and very tired when walking, and have a sense of fullness or pressure in the chest. Eventually victims will be short of breath.
even while resting. Victims must be guided back down and receive drug and oxygen treatment as soon as their illness is recognized as HAPE. Consult your health care provider or travel medicine specialist for specific recommendations about prevention and treatment.

**Procedure**
The medical examination shall take place not more than **six months** prior to commencing work at the CO. The applicant fills out the Pre-Examination Questionnaire and gives it to the examining physician. The examining physician completes the General Clinical Examination form. The medical examination should be repeated and fitness to work at high altitude re-certified as follows:

- after the period of validity of the current certification expires,
- prior to starting work again at high altitude, if an illness raises doubts as to the fitness of the person to work at high altitude,
- if the employee requests re-examination.

**I. Emergency Procedures**

- Call the San Pedro Base (85 12 67) or Casa de Don Tomas Hotel (85 10 55) and make sure that the information is passed to the CO Administrator or her representative.

  **Phone numbers:**
  In order to dial out from the San Pedro base, From Chajnantor, dial 9 – tone – number given above. The intention is to connect the emergency numbers.

  - Cellular telephone system at CBI base Chajnantor.
    Mobile phone number: 09.541 91 85

  - First aid station San Pedro: (055) 85 10 10

  - San Pedro police (Carabineros): (055) 85 10 03
    (from mobile phone): 133

  - San Pedro fire brigade: (055) 85 10 74
    (from mobile phone): 132