



Atacama Large Millimeter Array

High Altitude Fact Sheet

There are inherent risks in traveling at high altitude. This designed for general information, and is not a substitute for specific training or experience and does not constitute a clinical document.

Welcome

When visiting the ALMA project site, you should be prepared to recognize and respond to the symptoms of altitude illness caused by the lower level of oxygen available at high elevations. The human body can adjust to changes in altitude, by the process called acclimatization.

The ALMA Operations Support Facility (OSF) is located at an elevation of 2,900 m (9500 ft). If your travel plans include visiting the Array Operation Site (AOS), which is located at an elevation of 5,000 m (16500 ft), you should be aware of the symptoms of Acute Mountain Sickness.

Prevention

The simplest way to avoid or reduce the symptoms of altitude illness is to *ascend slowly* to give your body time to become accustomed to changes in oxygen concentration. It's also important to increase your fluid intake to counteract symptoms of dehydration induced by dry mountain air and increased respiratory rate. Spending a night at an altitude of 7920 feet or 2.400 m (Calama) might help your body adjust.

Recommendations

Symptoms of altitude illness occur during ascent, not descent. If you or a member of your party becomes ill during ascent, you should always assume the problem is due to altitude illness and act accordingly.

Avoid using alcohol or any unnecessary medications, since their effects may be increased at high altitudes. Sleeping pills, tranquilizers and narcotic-based pain relievers, in particular, can cause serious problems at high altitudes because they can decrease breathing rate. Consult with your health care provider about any medications you plan to bring with you.

Types of Altitude Illness

Acute mountain sickness (AMS) may include one or many of the following:

- headache
- insomnia
- irritability
- dizziness
- muscle aches
- fatigue
- loss of appetite
- nausea or vomiting
- swelling of the face, hands and feet



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If you experience mild AMS symptoms, limit your activity level. 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 descend until you begin to improve.

Consult your health care provider or travel medicine specialist for specific recommendations about prevention and treatment.

High Altitude Cerebral Edema (HACE) can be thought of as a worsening of AMS symptoms, with the addition of changes in consciousness and/or a loss of coordination as intracranial pressure increases. 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 illness. *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 grasp the problem. People who have experienced HACE should not visit the high site.

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.*

Danger signs include severe headache, extreme fatigue or breathlessness (especially while resting), and any neurological problems such as stumbling, confusion, poor judgment or changes in consciousness.

It is crucial to descend until symptoms begin to diminish if these signs are present.

Health Conditions

If you have had altitude problems previously, if you have heart or lung problems, or if you are planning to go to extremely high altitudes, consult your health care provider to discuss your options for prevention and treatment of illness. We want your visit to be pleasant.

For additional information, please refer to: <http://www.princeton.edu/~oa/files/altitude.pdf>