

12 February 2007

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## [How to Survive at -80°C](#)

### *Wintering in Antarctica*

Impossible as it may look, there are people living in Antarctica. In fact, we are not talking about human populations, but the researchers inhabiting for limited periods the research camps. Winter can be tough even in the temperate zone, but here it seems like we're on a frozen planet, where wintering requires rigorous and detailed preparation. "You have to be vigilant," said Claire Le Calvez, a technical supervisor at the French-Italian Concordia base, located on Dome C, more than 1,000 kilometers (620 miles) from the shore on the ice cap, at 3200 meters altitude. The 14 researchers are completely isolated 9 months yearly. "It is possible to quickly rescue someone who's been injured at the International Space Station (ISS), but for the nine months of winter, that is not the case for a patient at Concordia," said Yvan Levy, a doctor spending the winter at the base. With winter temperatures dropping as low as -80° C (-112 degrees F), the researchers must wear special clothing, warm gloves and sport masks to defend themselves against the blistering cold. But the mask turns breathing difficult, and the gloves need to be removed to handle small objects, so cracking nails cannot be avoided. Contact lenses can not be worn and the frames of glasses can frostbite where they touch the skin; a similar situation occurs with the rims of binoculars and telescopes. Strict safety regulations exist in order to maintain accidents rate low. Working or walking outside requires a companion, who could sound the alarm in the case of an accident. Anyone must inform by radio the time of leaving and return, it is forbidden to go more than 750 meters (2,500 feet) away from the base. "So far there have been very few work-related accidents among the scientists and the technicians working day and night at the station," said Le Calvez, who is on a mission for the French polar Institute Paul-Emile Victor (IPEV). Freezing cold is one issue, but the icy winds can increase it, as researchers at the French Dumont D'Urville station, located on the coast, complain. "When working, the cold is not really bad on its own. What is difficult, however, is the wind" said Jonathan Zaccharia, a meteorologist who has stayed 14 months at the station. "The wind is the worst," agreed climatologist Emile Beaudon. The katabatic winds blow around the base, coming down from the glacier peaks to the coast, often at more than 200 kilometer (120 miles) an hour. "Sometimes you can get lost just 200 meters from a building, not being able to distinguish the sky from the ground. The wind always blows away from the continent, so if you know the wind direction you can figure out where you are. The danger is when there is a seal hole in the ice, or falling from slipping on the snow," Beaudon said. Going outside requires carrying a radio that tracks the person and keeps it in contact with the group and with their doctor. All the researchers have also received training as rescuers or as firefighters. "And anyone venturing out onto the ice is required to bring a waterproof bag filled with dry cloths in case they fall into the water, something that happens every year," said physician Ariane Richasse. In her 14 months at the base, she took care of five people with fractures.