



Photo: terraXcube/Christian Steurer

## USE CASE

# Properties of clothing

Testing the properties of clothing in our Large Cube.



## terraXcube

terraXcube is Eurac Research's extreme climate simulation center at the NOI Techpark in Bolzano, South Tyrol, Italy. Within its chambers, even the most extreme environmental conditions on our planet can be created. By combining hypobaric and altitude technology with state-of-the-art environmental simulation, we aim to investigate the effects of extreme climate conditions on humans, ecological processes and industrial products. The climate chambers differ in size and equipment and can accommodate people, plants and other living organisms for up to extended periods and have the space to accommodate large machines and products. Each day our team breaks new ground with scientists and industry partners and prepares the path to gain discoveries.



Photo: MOORE S. P.A.

At terraXcube we simulate extreme weather and climate conditions at different altitudes, from intense heat to freezing cold and storms to cloudbursts. By combining these parameters, we offer a wide range of possibilities for companies in the clothing industry to test their products on the human body. The different functions of both materials and garments such as breathability and water permeability can be tested on human subjects. The Large Cube can be equipped with sports equipment such as treadmills and fitness bikes so garments can be evaluated under extreme conditions and whilst physical activities are being performed.

Different combinations of clothing materials, can also be tested in a controlled environment, resulting in precise information about each product .

In addition to simulating extreme weather phenomena and extreme altitudes of up to 9000 meters, long-term tests are also possible in the Large Cube. The maximum number of participants for each test is 15.

### The test in a nutshell:



Snow



Wind



Precipitation



Sun



High altitude



Humidity

### Measures:

The interior dimensions of the Large Cube are 12 m x 6 m x 5 m (L x W x H). The total available area is 137 m<sup>2</sup> plus 100 m<sup>2</sup> for test set-up. The entrance to the test chamber is formed by a wing gate with the dimensions: 3.6 m x 4 m (W x H). The maximum size of the test object can be 10 m x 3.6 m x 4 m (L x W x H).

### Accredited tests:

Tests accredited by [Accredia](#) according to the following standards:

- CEI EN 60068-2-1:2007, IEC 60068-2-1:2007  
Environmental testing: Cold
- CEI EN 60068-2-2:2008, IEC 60068-2-2:2007  
Environmental testing: Dry heat
- IEC 60068-2-13:2021 Environmental testing:  
Low air pressure,
- IEC 60068-2-39:2015, CEI EN 60068-2-39:2016  
Environmental testing: Temperature and low air pressure



LAB N° 1785L



### Technical data:

Temperature: -40...+60°C

Relative humidity :10 % – 90 %rH

Maximum simulated altitude: 9000 m

Air pressure: 95 kPa – 33 kPa

Wind: 0 m/s – 30 m/s

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