

# Ef

## Ice Cap Climate

### Location Examples:

- Antarctica
- Greenland
- North Pole
- South Pole
- Mars

study  
By Sarah Fahey

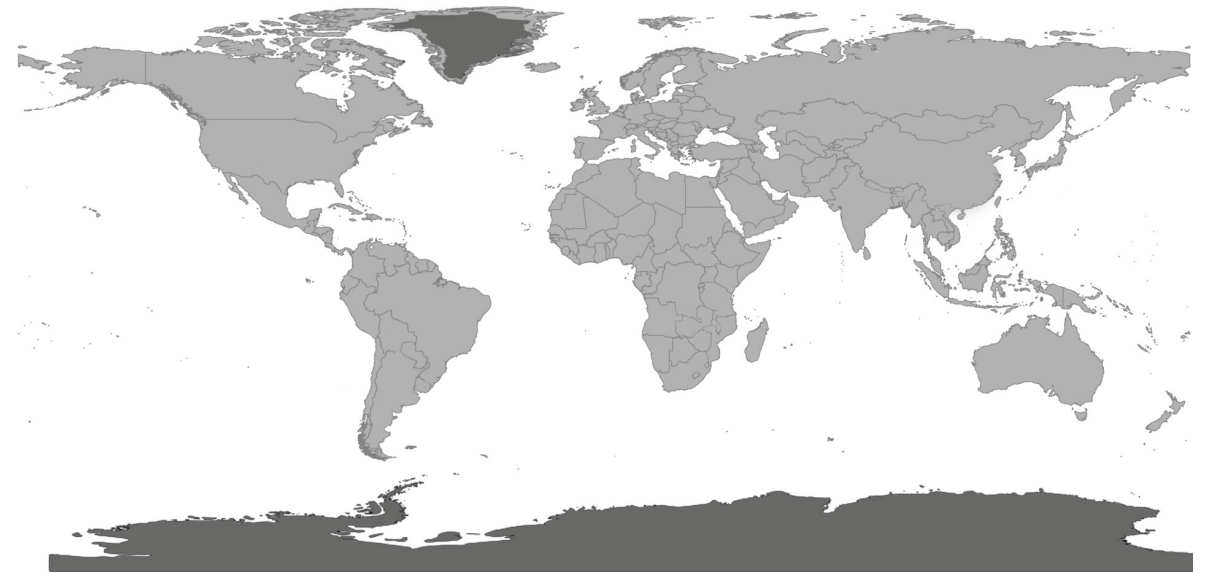
An ice cap climate is a polar climate where the temperature never exceeds freezing, 0 °C or 32 °F. Areas in this climate are covered by a permanent layer of ice and virtually no vegetation. Because of the extremely harsh freezing weather, ice cap climates are uninhabitable to humans; however, they may sustain animal life.

This climate can be found in polar regions, such as Antarctica and Greenland, as well as the highest mountaintops. Some of these places are able to sustain life, but have no permanent residents. Typically human activity in these regions is limited to research at dedicated research stations.

Because of the extreme temperatures and intense weather buildings require tremendous insulation and are usually prefabricated to avoid construction.

Sources:

[https://en.wikipedia.org/wiki/Ice\\_cap\\_climate](https://en.wikipedia.org/wiki/Ice_cap_climate)



# Princess Elizabeth Antarctica

case study  
By Sarah Fahey

Location: Utsteinen Nunatak, Antarctica



**Architect:**

**Owner:** International Polar Foundation, in partnership with the Belgian Polar Secretariat

**Year of completion:** 2009

**Climate:** Ice Cap Climate

**Material of interest:** Steel

**Application:** Structure & Exterior

**Properties of material:** strength, ability to prefabricate, structure gives a significant clearance over the snow. Solar panels, wind turbines, and passive building technologies allow maximum energy efficiency making it the first zero-emission station built in Antarctica.

**Sources:**

<https://www.atlasobscura.com/articles/wonders-of-polar-architecture>

[http://www.polarfoundation.org/projects/detail/princess-elisabeth\\_antarctica](http://www.polarfoundation.org/projects/detail/princess-elisabeth_antarctica)

# Halley VI Antarctic Research Center

case study  
By Sarah Fahey

Location: Brunt Ice Shelf, Caird Coast, Antarctica



**Architect:** Hugh Broughton Architects

**Owner:** British Antarctic Survey & Natural Environment Research Council

**Year of completion:** 2013

**Climate:** Ice Cap Climate

**Material of interest:** Prefabricated pods  
The station was built on site in 36 weeks, but over the course of 4 years during the antarctic “summers”

**Application:** Exterior

**Properties of material:** insulating, prefabricated, hydraulic legs make the station operable and able to rise above snow levels, situated on skis which also stations to be pulled by a trailer and relocated making this research station the first relocatable facility

**Sources:**

<https://www.designboom.com/architecture/hugh-broughton-architects-halley-vi-mobile-antarctic-research-station/>  
<https://www.archdaily.com/509902/venice-biennale-2014-antarctica-to-be-first-continent-represented> <https://www.bas.ac.uk/polar-operations/sites-and-facilities/facility/halley/>

