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Design Considerations for Weather Stations on Mount Everest

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Abstract Text:

Campbell Scientific has recently worked on projects to provide equipment used for the world's highest weather stations at altitudes above 7000 meters. Engineers from Campbell Scientific helped design the stations to meet project climatological and meteorological objectives, resulting in a specific set of requirements unlike any other mountain weather station.

The sensors and electronics on these weather stations must perform in intense environmental conditions experienced on high mountain peaks, like hurricane-force winds and extreme cold. The station design had to accommodate complex installation needs—lightweight enough to carry up the mountain, simple enough to install without tools, and easy to set up quickly in a hazardous, low-oxygen environment. The remote nature of the installation necessitated a rock-solid communications platform that allows for continuous, remote critical weather data transfer.

Testing the functionality of these stations was performed in various Rocky Mountain sites and at Mount Washington, New Hampshire, known for being one of the harshest environments in the United States when it comes to measuring weather.

This presentation will explore the design challenges, testing process, and implementation of preparing weather stations to operate above 7000 meters, including the highest elevation weather station in the world

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