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Weather's Effects On Consumer Electronics

Everyone is familiar with the damage weather can do to consumer electronics, in the form of rain and damaging weather conditions such as tornadoes and hurricanes. However, many people are not aware of the damage potential of other weather effects, such as cold, heat, humidity, wind, lightning and solar radiation.

Cold

Electronics do not operate as well under very cold conditions. When electronics are run in very cold environments, device shut-downs, malfunctions and component damage can occur.

Heat

Consumer electronics generate heat simply by operating, and most are designed with fans or other cooling systems in order to keep the heat levels down. However, when the device is exposed to other heat sources, such as high temperatures or direct sunlight, the temperature levels can exceed the device's limits, leading to shut-down, malfunctions or component damage. Batteries are particularly susceptible to heat damage. For example, if a cell phone is left in a vehicle, the heat buildup in the vehicle during hot months is enough to significantly shorten the battery's life. Extreme heat can also melt and warp plastic enclosures and cases.

Humidity

The lower the humidity, the more likely it is that damaging static charges will build up quickly. Static discharges can easily damage electronic components. In addition, very high humidity can lead to condensation within the electronics, which can cause corrosion. Finally, electronic devices which are moved between two different environments (such as an arid storage area and a humid room) should be given time to adjust to the room temperature in order to allow condensation caused by the differences in humidity and temperature to evaporate. Some devices, such as VCR's, will have a humidity sensor that will prevent the device from powering up when dangerous condensation levels are detected.

Wind

In and of itself, wind does not present a threat to electronics. However, wind usually carries with it particulate matter, from dust to sand to debris. Dust and sand can cause severe damage to electronics over time, and care should be taken to protect your devices.

Lightning

When people think of weather that can damage electronics, lightning is often the first element that comes to mind. Lightning causes a great deal of damage to electronics every year, but direct lightning strikes are rare. The usual method for protecting against static discharges (such as but not limited to lightning) is to properly ground your equipment and antennas. While nothing can completely prevent a direct lightning strike, grounding your equipment ensures that static discharges caused by nearby strikes or by static buildup in the atmosphere are directed harmlessly into the ground, rather than through your electronic devices.

Solar Radiation

Solar radiation is a serious problem for the communications industry. Solar activity can garble radio transmissions and fry the electronics on satellites and in antennas. During periods of heightened solar activity, shortwave communications are particularly curtailed, with range being significantly affected for the worse. Solar activity also affects satellite operation, such as those used in global positioning systems, satellite

television and radio.

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