

Issue XXIX

STEMBoost Newsletter



Brought to you by the STEMBoost Editorial Team

January Updates!

Ashish Kashyap, Staff Editor

January was an exciting month for the STEMBoost team. The team officers and volunteers worked through the month preparing for the STEMBoost Satellite invitational on the 21 st of January. From communicating with the teams, arranging logistics, planning execution, writing tests and supervising as ES, the team did a wonderful job of making the Invitational a success! With over 60 teams competing, this was no small endeavor. Congratulations to STEMBoost and Kennedy.

Kennedy middle school participated and fared very well in many invitationals this month.

1/7/2023: Mira Loma: Kennedy Team A - 1st place, Kennedy Team B - 6th place

1/14/2023: BirdSO: Kennedy A - #2, Kennedy B - #6, Kennedy C - #14

1/21/2023: Stemboost : Kennedy Sapphire - #1, Kennedy Ruby - #11

The teams participated and did well in several other invitationals: High Desert (5 th place Kennedy Emerald), UC Riverside, etc.

Coming up next, the STEMBoost family is preparing for the Third Annual Kennedy in-person invitational, followed by the Kennedy Satellite Invitational scheduled for February 4 and February 11.

How is global warming causing freezing weather in California – What is Global Weirding?

Ashish Kashyap, Staff Editor

Severe weather advisories have been popping up all over California this month and several records have been broken. Whiteout conditions and blizzards in the most unexpected places have left the residents stranded, without power and at the mercy of the harsh weather. Parts of Los Angeles, San Francisco and surrounding cities have freeze warnings and the hills are covered in sheets of snow, which is rare for these warm locations.

We have already been surprised by unusual rains and flooding in most major cities in California in the past two months. The roads have potholes and crews have been scrambling to remove debris and downed trees.

At the same time, Southwestern US states are seeing an unusually hot winter season with summerlike temperatures. Southern states like Tennessee, West Virginia, Florida, Georgia, North Carolina and others are setting all time heat records for the winter season in just one month.

Extreme weather is increasing because of climate change-induced atmospheric circulation changes

We already know that higher air temperatures allow it to hold more moisture and produce heavier rain and snow. Warmer air currents also cause faster wind movement causing stronger storms.

This week's extreme weather was caused by an unusually extreme configuration of the jet stream—a high-pressure wind that circles the Arctic region— and forms the boundary between cold, Arctic air to the north and warm, subtropical air to the south.

Our weather patterns are being disrupted and there is more drastic variability in temperatures and climate due to anthropogenic warming of the planet. This is called “global weirding” by climate scientists.

It is the nature of weather to be extreme. However, inordinate patterns like we are seeing recently have become more common in current times, and have been linked to human-caused climate change. In particular, the loss of Arctic Sea ice is thought to be significantly affecting the global atmospheric circulation. The Arctic Ocean is mostly covered in sea ice, but the increase in global temperatures in the past 40 years has caused an approximately one-third drop in summer sea ice coverage and likely a 50% drop over the past century. The cause is a phenomenon of intense warming in the Arctic called Arctic amplification. A key part of this vicious cycle is that melting of ice reveals dark seawater underneath, which absorbs more sunlight and causes more warming.

The Arctic and the Antarctic are the natural refrigerators of the world. Since they are covered in white snow and ice that reflect heat back into space, they balance out other parts of the world that absorb heat. Less ice means less reflected heat, meaning more intense heatwaves worldwide. But it also means more extreme winters: as the polar jet stream is destabilized by warmer air, it can dip south, bringing bitter cold with it.

Works cited:

<https://www.nytimes.com/2023/02/24/us/winter-storm-california-weather.html>

<https://yaleclimateconnections.org/2023/02/a-rare-blizzard-hits-california-as-summerlike-heat-roasts-the-eastern-u-s/>

<https://www.worldwildlife.org/pages/six-ways-loss-of-arctic-ice-impacts-everyone>