Red Snow

Why in News

The phenomenon of **“red snow”** or **“watermelon”** has been observed over the last few weeks around **Ukraine’s Vernadsky Research Base,** off the coast of **Antarctica’s northernmost** peninsula.

- The snow is red because of a **red-pigmented**, microscopic **algae called Chlamydomonas nivalis chlamydomonas,** which thrives in freezing water as the ice melts.

Key Points

- This phenomenon has been known since ancient times but now it raises concerns about climate change.
    - Aristotle is believed to be one of the first to give a written account of red snow, over 2,000 years ago. He attributed the **redness of the snow to the colour of worms and grub** (larva of an insect), which are found in long-lying snow.
- According to modern-day scientists, it is an **algae species, Chlamydomonas nivalis chlamydomonas** which exists in the **snow in the polar and glacial regions** and carries a **red pigment to keep itself warm.**
    - Algae contain **chlorophyll (green pigment)** as well as a red carotene layer in their cells which mixes with the green colour to cause snow to look like “raspberry jam”.
    - This layer is also said to **protect the algae from ultraviolet radiation.**
- These algae **change the snow’s albedo** (the amount of light or radiation the snow surface is able to reflect back).
    - The intensity of the redness increases with the dense presence of the algae. The darker tinge leads to more absorption of heat by the snow. Subsequently, the ice melts faster.
    - The melting is **good for the microbes** that **need the liquid water to survive and thrive** but it is **bad for already melting glaciers.**

Source: IE