

Black Carbon

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Why in news?

- Black carbon concentrations near the Gangotri glacier rose 400 times in summer due to forest fires and stubble burning
- from agricultural waste, and triggered glacial melt, according to study by scientists at the Wadia Institute of Himalayan Geology (WIHG).

What is black carbon?

- Black carbon (BC) **consists of pure carbon** in several linked forms. It is **formed through the incomplete combustion of fossil fuels, biofuel and biomass** and is emitted in both anthropogenic causes and naturally occurring soot.
- It is a **short-lived** climate pollutant with a lifetime of only a few days to weeks after release in the atmosphere. The fine particles absorb light and about a million times more energy than carbon dioxide. It is said to be the second largest contributor to climate change after CO₂.
- **India is the second largest emitter** of black carbon in the world, with the **Indo Gangetic plains said to be the largest contributor**.
- Black carbon absorbs solar energy and warms the atmosphere. When it falls to earth with precipitation, it darkens the surface of snow and ice, reducing their albedo (the reflecting power of a surface), warming the snow, and hastening melting.

Effects:

- It aggravates breathing disorders.

- If deposited on snow, it could accelerate the heating of snow and quicken the melting of glaciers.
- It can upset the monsoon system.
- As pregnant women are exposed to airborne pollutants in their daily life, inhalation of these particles by the mother gets trans-locate to the placenta, resulting in life-long changes to the development of the baby along with permanently damaging the lung tissues.
- A link has been established between exposure to dirty air and increased cases of miscarriages, premature births, and low birth weights.