МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
КАФЕДРА ІНОЗЕМНИХ МОВ
ЛІНГВІСТИЧНИЙ НАВЧАЛЬНО-МЕТОДИЧНИЙ ЦЕНТР

МАТЕРІАЛИ

VIII МІЖВУЗІВСЬКОЇ НАУКОВО-ПРАКТИЧНОЇ

КОНФЕРЕНЦІЇ

ЛІНГВІСТИЧНОГО НАВЧАЛЬНО-МЕТОДИЧНОГО ЦЕНТРУ

КАФЕДРИ ІНОЗЕМНИХ МОВ

“TO LIVE IN A SAFER WORLD”

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radiation is re-emitted from the Earth into space, to maintain a zero average net energy balance between the top of the atmosphere and outer space. To maintain its long- thermal equilibrium, the Earth must re-radiate back to space, on average, the same amount of energy that is adsorbed. It does so by emitting longwave infrared radiation. The amount of longwave radiation emitted by a warm surface depends on its temperature and how absorbing it is. If the Earth had a perfectly absorbing surface, it would re-emit the required 235 Wm-2 of thermal radiation at a rather low temperature of about -19`C. This is much colder than the conditions that actually exist near the Earth's surface – where the global mean temperature is about -15`C. This apparent discrepancy arises from the natural greenhouse effect: because the Earth is not a perfect absorber, it must be about 34`C warmer than it would otherwise be, to re-emit the net 235 Wm-2 of radiation into space.

ACID RAIN. PROBLEMS AND SOLUTIONS

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Acid rain refers to a relatively new phenomenon, a form of precipitation that is acidic in nature. The result of human-induced emissions, acid rain has grave effects on the planet's flora and fauna and different ecosystems. The precipitation occurs when exhaust emissions of sulfur and nitrogen compounds react in the atmosphere.

Acid rain refers to precipitation, both wet and dry, that is acidic in nature. Precipitation like sleet, rain, snow or dry acidic components that have a pH of less than 4.0 is termed as acid rain. This phenomenon is the result of industrial and vehicular emissions of sulfur dioxide and nitrogen oxides reacting in the Earth's atmosphere.

Acid rain is associated with atmospheric pollution. Today, a myriad of highly deleterious environmental effects are being researched upon. The occurrence results in a precipitous pH value of around 4.0. Every subsequent decrease in the pH value is indicative of a greater acidic composition. Acid rain with pH readings well

below 2.4 are being reported consistently from industrialized areas, initiating the need for the development of smokestacks. The acidification is largely triggered by the increased presence of sulfur dioxide in the atmosphere. Emissions from the burning of fossil fuel, industry combustion, wildfires and volcanic eruptions add to the existent quantum of acid-producing gases in the atmosphere. The other causes are emissions from electricity generating plants and motor vehicles.

The harmful gases traverse across hundreds of kilometers before converting into acids, causing widespread ecological damage. It has an adverse impact on our forests, soils, flora and fauna that thrive in various ecosystems, and human health. The phenomenon has eliminated certain life forms completely, while adversely affecting the quality of soil biology and chemistry. The forest cover, too, has been extensively damaged, while the precipitation continues to threaten human health with the onslaught of premature death and specific particulate health effects. The phenomenon has not spared the inanimate either. It continues to threaten the survival of historical monuments and structures with the sulfuric acid induced flaking of limestone, marble, sandstone and granite.

The effects of acid rain on our ecosystem can be contained with awareness and education on the trigger factors of the phenomenon. Once these are addressed, the devastating effects can be curbed and remedied. Some of the prevention techniques to the problem include the use of Flue Gas Desulfurization or FGD in coal-burning power plants. This helps to filter the sulfur-containing gases and neutralize the same from the stack gases to obtain a pH-neutral that can be physically removed with the help of special 'scrubbers'. The pollutants can also be converted into industrial sulfates. Control of automobile nitrogen oxide emissions also helps to reduce the onslaught and address the problem with fervency.