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NESA NEWSLETTER

NATIONAL ENVIRONMENTAL SCIENCE ACADEMY

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October 2023

From the Editor's

Dear Readers,

In the October issue of our Newsletter, we received several popular articles from diverse fields. All the authors deserve great appreciation for sharing articles in huge numbers. Please continue sending articles to our Publication team and share published newsletter with your friends also.

I would like to thank the Editorial team including Print, Designer and Publication committee for their efforts throughout the edition.

Your suggestions are always welcome for improvement.

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ENVIRONMENTAL PHYSICS: PROSPECTS & APPLICATIONS

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Environmental physics is a branch of science that focuses on understanding the physical processes and interactions within the environment. It combines principles from physics with varied aspects of environmental science to study various natural phenomena and their impact on the Earth's atmosphere, oceans, land, ecosystems and overall environment.

Some key areas of study under environmental physics include:

1. **Climate Physics:** Investigating the physics behind climate change, atmospheric processes, and global climate patterns.
2. **Atmospheric Physics:** Analyzing the behavior and properties of the Earth's atmosphere, including air circulation, weather patterns, and atmospheric composition.
3. **Ocean Physics:** Studying the physical properties and dynamics of oceans, such as ocean currents, waves, and tides.
4. **Geophysical Fluid Dynamics:** Examining the behavior of fluids like air and water in the Earth's environment, understanding fluid motion and its effects.
5. **Biophysics and Ecology:** Investigating the interaction of physical processes with living organisms and ecosystems, including the study of energy transfer, radiation, and biophysical processes in the natural environment.



6. **Remote Sensing:** Using physics-based techniques to gather information about the Earth's surface and atmosphere from satellite and airborne sensors.

Environmental physics plays a crucial role in understanding the complex interactions between the Earth's physical processes and the environment, helping to address environmental challenges and inform sustainable practices. The study of environmental physics is particularly important under present global circumstances due to the following reasons:

1. **Climate Change:** Environmental physics helps us understand the physical processes that contribute to climate change, such as the greenhouse effect and natural climate variability. By understanding these mechanisms, we can develop strategies to mitigate and adapt to the impacts of global warming.
2. **Extreme Weather Events:** With the increasing frequency and intensity of extreme weather events, such as hurricanes, heatwaves, and droughts, studying environmental physics helps in predicting and preparing for such events, reducing their potential impact on communities and ecosystems.
3. **Sea-Level Rise:** Environmental physics is crucial in assessing the factors leading to sea-level rise, such as thermal expansion and the melting of glaciers and ice caps. Understanding these processes helps in planning for the impacts on coastal regions and vulnerable populations.
4. **Air Quality and Pollution:** Environmental physics is instrumental in understanding air pollution, its sources, and dispersion patterns. This knowledge aids in developing effective air quality management strategies to protect public health and the environment.
5. **Renewable Energy:** As societies seek to transition to sustainable energy sources, environmental physics plays a vital role in analyzing and optimizing renewable energy technologies like solar, wind, and hydroelectric power.
6. **Ecosystem Health:** Environmental physics provides insights into the physical interactions that affect ecosystems, such as ocean currents and temperature variations. Understanding these factors helps in conserving biodiversity and managing natural resources.
7. **Sustainable Development:** By incorporating environmental physics into planning and decision-making processes, we can pursue sustainable development practices that balance economic growth with environmental conservation.
8. **Global Collaboration:** Given that environmental issues cross international boundaries, understanding environmental physics fosters global collaboration and cooperation in addressing common challenges like climate change and pollution.

In summary, the study of environmental physics is crucial for developing evidence-based policies, strategies, and technologies to address the pressing environmental issues facing the world today and to ensure a sustainable future for generations to come.

Photo credit: Saikat Kumar Basu

ENROLL YOURSELF TO NESA NEWSLETTER EDITORIAL BOARD MEMBER

Editorial board members of NESA newsletter will be revised for the year 2023. All the interested applicants may send their curriculum vitae to **Editor in Chief** by **30th Nov., 2023**.

ELEPHANTS: AN ICONIC GLOBAL WILDLIFE AMBASSADOR

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Elephants are magnificent wild animals known for their large size, long trunks, and remarkable intelligence. They inhabit various regions across Africa and Asia and play crucial roles in their ecosystems. These gentle giants are herbivores, consuming vast amounts of vegetation daily. Unfortunately, they face threats like habitat loss and poaching, making conservation efforts vital to protect these iconic creatures. Elephants are remarkable creatures with unique anatomy and morphology adapted for their large size and specific ecological roles. Here are some key aspects of their anatomy and morphology

Size: Elephants are the largest land animals on Earth. They can weigh up to several tons and stand up to 13 feet (4 meters) tall at the shoulder.

Trunk: The most distinctive feature of an elephant is its trunk. This elongated, muscular appendage is a fusion of the nose and upper lip. It's incredibly versatile and serves various functions, including breathing, drinking, grasping objects, and even making sounds.

Tusks: Both African and Asian elephants can have tusks, which are elongated, curved teeth. Tusks are used for various tasks, such as digging, foraging, defence, and in some cases, as weapons. Unfortunately, tusks have also made elephants targets for ivory poaching.

Ears: Elephants have large ears that help regulate their body temperature. Blood vessels in their ears radiate heat, acting as natural cooling systems. The shape of their ears can vary between African and Asian elephants.

Teeth: Elephants have a unique set of teeth, with six sets of molars throughout their lives. These molars are continuously replaced as they wear down. Grinding of plant material with these teeth is essential for their herbivorous diet.

Legs and Feet: Their legs are sturdy and pillar-like to support their massive bodies. Elephants have relatively short, thick legs with padded feet, which help them move through various terrains, including soft mud.

Skin: Elephant skin is thick, rough, and wrinkled, which helps to retain moisture and protect them from the sun. It can also be quite sensitive to touch.

Tail: Elephants have a relatively long, coarse tail with a tuft of hair at the end. They use their tails to swat away insects and communicate with other elephants.

Molting: Elephants undergo molting, where patches of old

ALL ABOUT ELEPHANTS
CLASSIFICATION, FACTS AND THE 6 FASCINATING TYPES OF ELEPHANTS

DID YOU KNOW!
Baby elephants can stand up on their own within about 20 minutes of taking their first breath.
Elephant Tusks Are Actually Teeth
An Elephant's Trunk Can Contain Around 2 Gallons Of Water

SPECIES OF ELEPHANTS LIVING
ONLY SIX
...ELEPHANT SPECIES ARE ALREADY AT RISK OF EXTINCTION

TREATS
1 Habitat Loss 2 Poaching

ALL ELEPHANTS BELONG TO THE FAMILY ELEPHANTIDAE

ELEPHAS Genus → ASIAN
LOXODONTA Genus → AFRICAN

KINGDOM	▶	ANIMALIA
PHYLUM	▶	CHORDATA
CLASS	▶	MAMMALIA
ORDER	▶	PROBOSCIDEA
FAMILY	▶	ELEPHANTIDAE

6 TYPES OF ELEPHANTS

AFRICAN ELEPHANTS

- AFRICAN BUSH ELEPHANT
- AFRICAN FOREST ELEPHANT

ASIAN ELEPHANTS

- INDIAN ELEPHANT
- SRI LANKAN ELEPHANT
- SUMATRAN ELEPHANT
- BORNEO ELEPHANT

Outdoors

skin peel away in sheets. This process helps them get rid of parasites and dead skin.

Digestive System: Elephants have a specialized digestive system to process the high-fiber, low-nutrient vegetation they consume. They rely on fermentation in their large, complex stomachs to break down cellulose.

AFRICAN ELEPHANT

ASIAN ELEPHANT

TUSKS: Both male and female African elephants are capable of growing tusks.

TUSKS: Only male elephants are capable of growing tusks, while females sometimes grow tusks (a very small tusk).

WEIGHT: Between 4000kg to 7000kg

WEIGHT: Between 3000kg to 6000kg

TOENAILS: African forest elephants have 5 in front and 4 in hind while African bush elephants have 4 in front and 3 in hind

TOENAILS: 5 in front and 4 in hind

EARS: Large ears shaped like the continent of Africa

EARS: Smaller, rounded ears

TRUNK: Two "fingers" for grasping

TRUNK: One "finger" for grasping

HEIGHT: About 4 metres (tallest at the shoulder)

HEIGHT: About 3.5 metres (tallest at the arch of the back)

PIGMENTATION: Consistent dark colouration

PIGMENTATION: Freckled appearance and pigmentation

AFRICAN ELEPHANT

ASIAN ELEPHANT

What are the differences?

EARS: Large, "Africa-shaped" ear

EARS: Small, rounded ear

TRUNK TIP: Two "fingers" for grasping

TRUNK TIP: One "finger" for grasping

HEAD: Single dome

HEAD: Twin dome

HEIGHT (tallest at shoulder): 9 – 13'

HEIGHT (tallest at back): 6.5 – 9'

WEIGHT: 8,800 – 15,400 lbs.

WEIGHT: 6,600 – 13,200 lbs.

Brain: Elephants have large brains, known for their high intelligence and complex social behaviours. They exhibit problem-solving skills, self-awareness, and strong social bonds within their herds.

Tongue: The tongue of an elephant is muscular and can be used for various tasks, such as grasping and manipulating food.

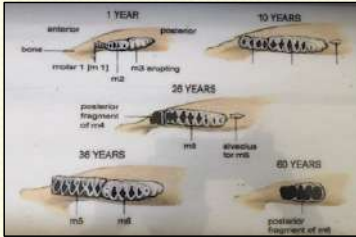
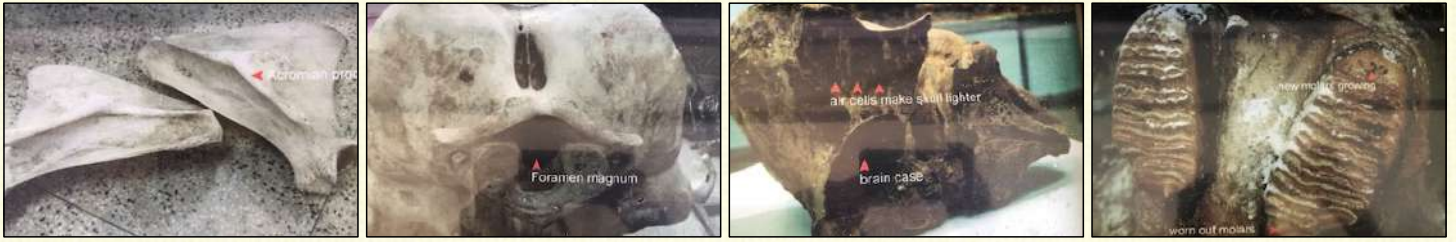
Elephants are not only fascinating in terms of their anatomy and morphology but also for their ecological importance and their role in shaping the ecosystems they inhabit. Their unique adaptations have allowed them to thrive in diverse habitats across Africa and Asia. Elephants hold significant importance in the wild for several reasons. Elephants play a crucial role in shaping their habitats as ecosystem engineers. They create water holes by digging in dry riverbeds, which benefit other animals during droughts. Their feeding habits also influence plant diversity. They consume a wide variety of plants and fruits, and their dung serves as a means of seed dispersal, helping maintain plant diversity in their ecosystems. By feeding on different types of vegetation through browsing and grazing, elephants can

influence the composition and structure of vegetation, which can benefit other herbivores and maintain a balanced ecosystem. Elephants are charismatic megafauna, attracting tourists to wildlife reserves and providing income for local communities through ecotourism, which supports conservation efforts. Hence they have significant cultural and ecotourism values.

The health of elephant populations can serve as an indicator of the overall health of an ecosystem. Declining elephant numbers often signal broader ecosystem issues. Maintaining healthy elephant populations helps preserve genetic diversity, which is vital for the long-term survival of the species. Studying elephants in the wild provides valuable insights into animal behaviour, communication, and social structures, contributing to our understanding of wildlife. Conserving elephants is not just about protecting a single species; it's about preserving the intricate web of life in their ecosystems and the cultural and economic benefits they provide to local communities and the world.

Conserving elephants requires a combination of local and international efforts. Here are some key strategies for elephant conservation





Anti-Poaching Measures: Implement rigorous anti-poaching initiatives to combat the illegal ivory trade and poaching of elephants. This includes increased law enforcement, technology like drones, and community engagement to

Research and Monitoring: Continuously study elephant populations and behaviours to inform conservation strategies. Monitoring helps identify threats and assess the effectiveness of conservation programs.

Reducing Demand: Combat the demand for ivory and other elephant products through public awareness campaigns, stricter regulations on ivory trade, and international cooperation to stop illegal trafficking.

Human-Elephant Conflict Mitigation: Develop and implement strategies to reduce conflicts between elephants and local communities, such as using barriers, early warning systems, and non-lethal deterrents.

Transboundary Cooperation: Collaborate with neighbouring countries to protect elephant populations that cross borders. Migration routes often extend beyond national boundaries.

Education and Advocacy: Raise awareness about the importance of elephant conservation and the ecological roles they play. Advocate for policy changes and support organizations dedicated to elephant protection.

report poaching activities.

Habitat Protection: Preserve and protect elephant habitats by creating and maintaining wildlife reserves and national parks. Ensure these areas are well-managed to minimize human encroachment.

Community Involvement: Engage local communities in conservation efforts. Providing incentives for communities to protect elephants and their habitats can reduce human-elephant conflicts and promote coexistence.

Corridor Creation: Establish and maintain wildlife corridors that allow elephants to migrate and maintain genetic diversity, even in fragmented landscapes.



Tourism Management: Regulate wildlife tourism to ensure it doesn't disrupt elephant behaviour or habitats. Ecotourism can provide funding for conservation efforts when managed sustainably.

Climate Change Mitigation: Address climate change,

which can impact elephant habitats and food sources. Reducing greenhouse gas emissions can indirectly benefit elephant conservation.

Conserving elephants is a complex task that requires the cooperation of governments, NGOs, local communities, and

the international community. It's essential to address the underlying causes of their decline, including habitat loss and demand for ivory, while also protecting their natural

habitats, environments and promoting coexistence with human communities.

Photo credits: Saikat Kumar Basu

MARINE BIODIVERSITY

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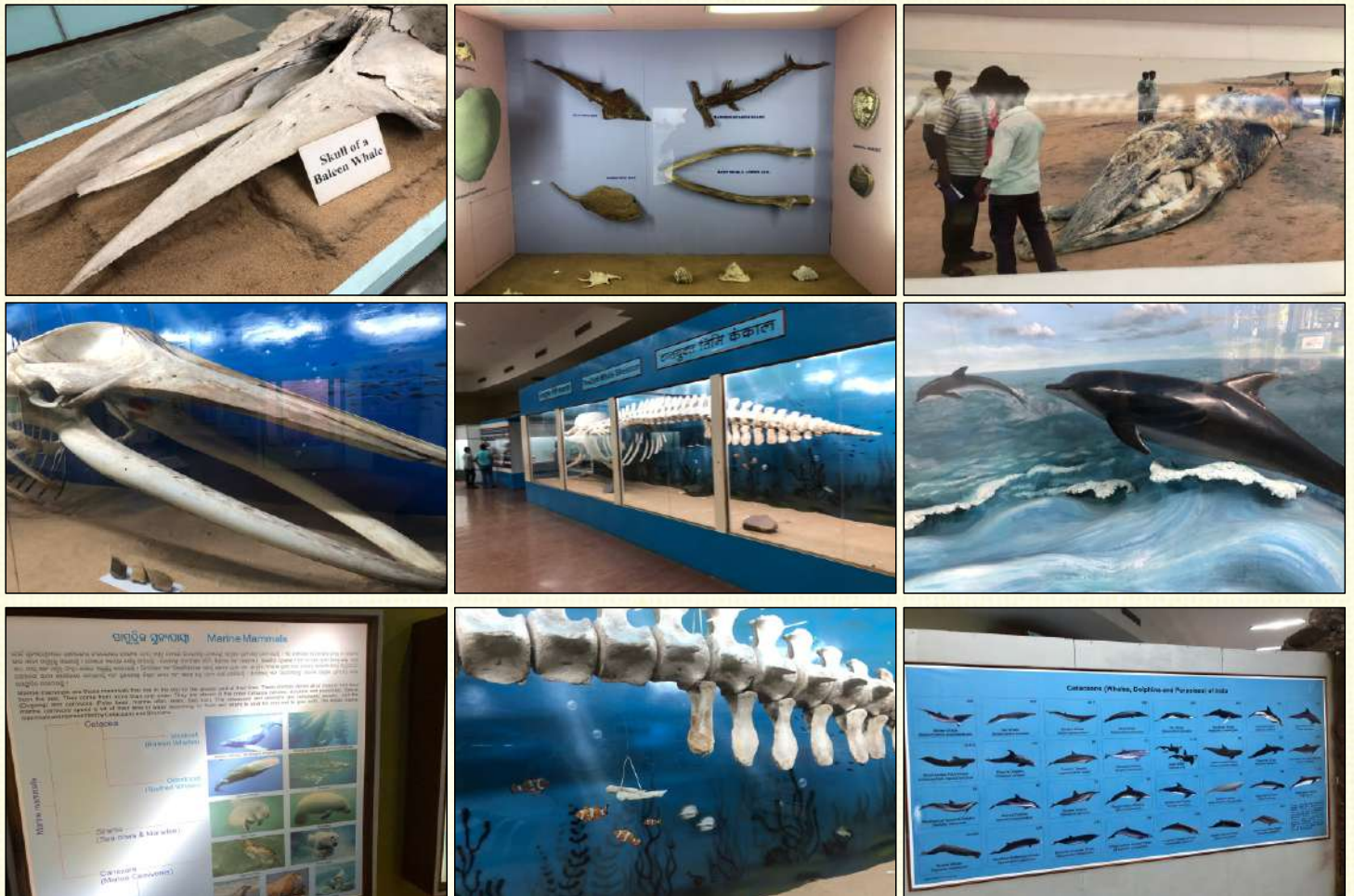


Marine biodiversity refers to the variety of life forms and ecosystems found in the world's oceans and seas. It encompasses a wide range of species, from microscopic plankton to massive whales, as well as the diverse habitats they inhabit, such as coral reefs, kelp forests, and deep-sea ecosystems. Marine biodiversity is essential for several reasons:

1. **Ecosystem Stability:** Marine ecosystems are interconnected, and the diversity of species within them helps maintain ecological balance. Each species plays a unique role in the food web, and the loss of one species can have cascading effects on others.
2. **Economic Value:** Oceans are a crucial source of livelihood for millions of people through activities like fishing, tourism, and coastal development. Healthy marine ecosystems support these industries and provide food security.
3. **Biomedical Resources:** Marine organisms are a source of potential medicines, including treatments for cancer, pain, and bacterial infections. Many marine species have unique biochemical compounds that have medical applications.
4. **Climate Regulation:** Oceans play a vital role in regulating the Earth's climate. Phytoplankton, for example, produces oxygen and absorbs carbon dioxide, helping to mitigate climate change.
5. **Nutrient Cycling:** Marine ecosystems are involved in nutrient cycling, which influences nutrient availability in the oceans and on land. This has implications for global nutrient cycles and terrestrial ecosystems.

6. **Cultural and Recreational Value:** Marine biodiversity contributes to cultural traditions and recreational activities. People value the beauty and diversity of marine life for activities like snorkeling, scuba diving, and ecotourism.
7. **Genetic Diversity:** Marine species often exhibit high genetic diversity, which can be essential for adaptation to changing environmental conditions. These genetic resources can benefit agriculture and aquaculture.
8. **Scientific Understanding:** Studying marine biodiversity enhances our understanding of life on Earth, from evolutionary processes to ecological interactions. This knowledge has broader implications for science and medicine.
9. **Aesthetic and Inspirational Value:** The beauty and wonder of marine life inspire awe and wonder, fostering an appreciation for the natural world and a sense of responsibility for its preservation.
10. **Global Biodiversity:** Oceans cover more than 70% of the Earth's surface and are home to a significant portion of the planet's biodiversity. Conserving marine biodiversity is essential for overall global biodiversity.





However, marine biodiversity is under threat from various human activities, including overfishing, habitat destruction, pollution, climate change, and invasive species. Protecting and conserving marine ecosystems and biodiversity is critical to maintaining the health of our planet and ensuring the well-being of both marine and human communities.

Successfully protecting marine biodiversity requires a combination of conservation strategies, international cooperation, and sustainable practices. Here are key approaches to achieve this goal:

1. **Marine Protected Areas (MPAs):** Establish and expand MPAs to safeguard critical marine habitats and species. Enforce strict regulations within MPAs to prevent overfishing, habitat destruction, and other harmful activities.
2. **Sustainable Fishing Practices:** Implement science-based fisheries management, including setting catch limits and protecting breeding and nursery areas. Promote sustainable fishing practices such as selective fishing gear and reducing bycatch.
3. **Combat Illegal, Unreported, and Unregulated (IUU) Fishing:** Strengthen monitoring and enforcement to combat IUU fishing, which contributes to overfishing and depletion of marine species.
4. **Reduce Pollution:** Implement measures to reduce land-

based pollution, including proper waste disposal, reducing runoff, and improving sewage treatment. Control marine pollution from shipping, including the discharge of ballast water and ship emissions.

5. **Climate Change Mitigation:** Address climate change to mitigate its impacts on marine biodiversity, including ocean acidification and temperature rise. Support international efforts to reduce greenhouse gas emissions.
6. **Habitat Conservation and Restoration:** Protect and restore critical marine habitats such as coral reefs, mangroves, and seagrass beds. Implement measures to reduce coastal development and habitat destruction.
7. **Marine Species Protection:** Enforce international agreements like CITES (Convention on International Trade in Endangered Species) to regulate the trade of endangered marine species. Combat the illegal trade in marine wildlife, including corals and seahorses.
8. **Scientific Research and Monitoring:** Invest in marine research to better understand marine ecosystems and species. Monitor and assess the health of marine ecosystems and species to inform conservation efforts.
9. **Education and Public Awareness:** Educate the public about the importance of marine biodiversity and the threats it faces. Encourage sustainable consumer choices, such as sustainable seafood options.



10. **International Cooperation:** Collaborate with other countries and international organizations to protect shared marine resources and combat transboundary issues like IUU fishing. Implement and strengthen regional agreements and conventions related to marine conservation.
11. **Community Engagement:** Involve local communities in marine conservation efforts, ensuring that they have a stake in protecting their own resources. Support alternative livelihoods for communities dependent on marine resources.
12. **Corporate Responsibility:** Encourage responsible corporate practices, Successfully protecting marine biodiversity requires a combination of conservation strategies, international cooperation, and sustainable practices. Here are key approaches to achieve this goal:

Marine Protected Areas (MPAs): Establish and expand MPAs to safeguard critical marine habitats and species. Enforce strict regulations within MPAs to prevent overfishing, habitat destruction, and other harmful activities.

Sustainable Fishing Practices: Implement science-based fisheries management, including setting catch limits and protecting breeding and nursery areas. Promote sustainable fishing practices such as selective fishing gear and reducing bycatch.

IMPORTANT DAYS AND ACTIVITIES IN OCTOBER 2023

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1 October: International Day of the Older Persons

Every year on October 1st, the International Day of the Elderly is held to raise awareness of issues affecting the elderly and to encourage the growth of a society that is inclusive of people of all ages. The International Day of Older Persons was established by a resolution passed by the UN General Assembly on December 14, 1990.



1 October: International Coffee Day

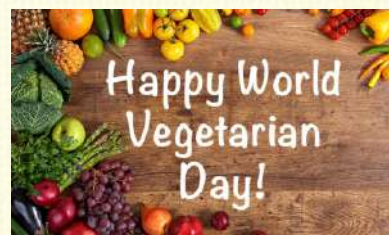


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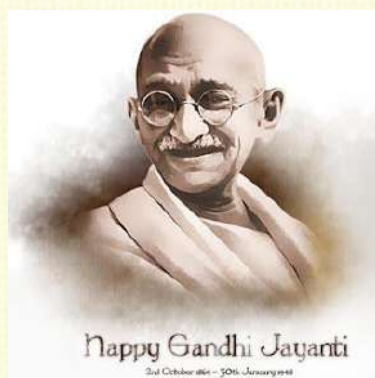
1 October: World Vegetarian Day

Annually, on October 1st, is commemorated as World Vegetarian Day. It was established in 1977 by the North American Vegetarian Society (NAVS), and the International Vegetarian Union supported it in 1978.



2 October: Gandhi Jayanti

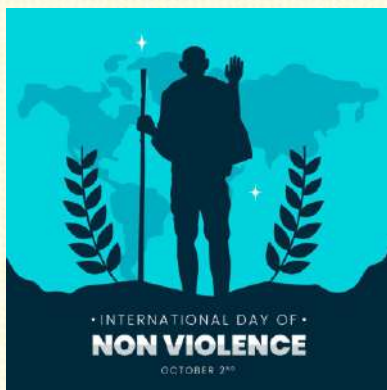
Every year on October 2nd, Gandhi Jayanti is observed to commemorate the anniversary of Gandhi's birth. He was born in Porbandar, Gujarat, on October 2nd, 1869. Both our lives and the lives of well-known international leaders are inspired by him.



2 October: International Day of Non-Violence

On October 2, the world observes the International

Day of Nonviolence in honour of Mahatma Gandhi, who was instrumental in securing India's independence. The International Day of Non-Violence was established by a resolution passed by the General Assembly on June 15, 2007, to promote non-violence through education and public awareness.



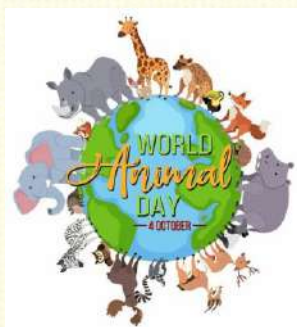
3 October: World Habitat Day



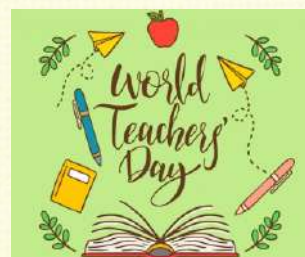
Every year on the first Monday of October, people around the world celebrate World Habitat Day. The first time it was observed globally was in 1986 after the UN General Assembly declared it in December 1985.

4 October: World Animal Welfare Day

On October 4, people around the world observe World Animal Wellbeing Day to spread awareness of the importance of defending the rights and welfare of animals. The world needs to raise its standards for welfare.



5 October: World Teachers' Day



Every year on October 5th, people all around the world observe World Teachers' Day to mark the approval of the ILO/UNESCO Recommendation concerning the Status of Teachers in 1966. Without a doubt, this recommendation establishes standards for the

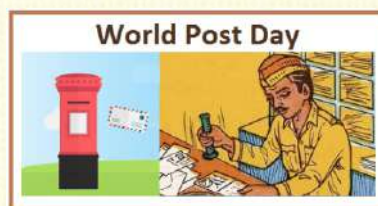
duties and rights of instructors, as well as for education, hiring, and employment.

7 October: World Cotton Day

The goal of the worldwide celebration on October 7 is to raise awareness of the value of cotton.



9 October: World Postal Day



Every year on October 9, people throughout the world commemorate World Postal Day to increase awareness of the importance of the postal service to individuals and companies.

10 October: World Mental Health Day

Every year on October 10, people throughout the world celebrate World Mental Health Day to raise awareness about the prevalence of suicide and the part that each of us can play in preventing it. The World Federation for Mental Health is responsible for organizing this day.



11 October: International Day of the Girl Child



On October 11, it is International Day of the Girl Child, a day set aside to advocate for girls' rights.

13 October: International Day for Disaster Risk Reduction

Every year on October 13th, the International Day for Natural Catastrophe Reduction is commemorated to increase public awareness of the risk of disaster reduction. The UN General Assembly established the International Day of Disaster Risk Reduction in 1989.



13 October: World Sight Day



On the second Thursday of the month of October, World Sight Day is honoured. It falls on October 13 in 2022. The purpose of World Sight Day is to raise public awareness of blindness and vision impairment.

15 October: Pregnancy and Infant Loss Remembrance Day

In the US, Pregnancy and Infant Loss Remembrance Day is honoured on October 15 each



year. This day is designated as a memorial for miscarriages and baby deaths. Candlelight vigils and memory services are held to mark the occasion.

15 October: Global Handwashing Day

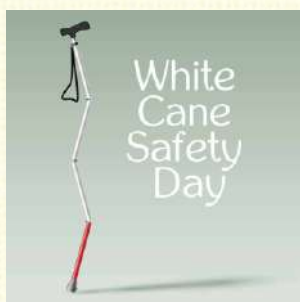


The Global Handwashing Partnership established Global Handwashing Day, which is celebrated annually on October 15. This day offers the chance to develop, test, and reproduce original strategies for motivating individuals to wash their hands with soap at crucial moments.

The first Global Handwashing Day was observed in 2008.

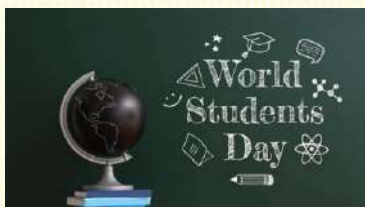
15 October: World White Cane Day

According to the National Federation of the Blind, World White Cane Day is observed on October 15. For blind individuals, a white cane is a crucial instrument that enables them to lead full and independent lives. They can move freely and safely from one location to another with the aid of a white cane.



15 October - World Students' Day

Every year on October 15th, World Students' Day is commemorated to commemorate A.P.J. Abdul Kalam's birth anniversary. On this day, he is honoured for his contributions to



science and technology as well as for the role of teacher he performed throughout his scientific and political careers.

16 October - World Food Day



Every year on October 16th, World Food Day is observed to promote a healthy diet. The United Nations founded and launched the Food and Agriculture Organization on this

date in 1945.

16 October: World Anaesthesia Day

The first successful demonstration of diethyl ether anaesthesia in 1846 is commemorated on October 16 as World Anaesthesia Day.



16 October: World Spine Day



In order to raise awareness of the burden of spinal pain and disability worldwide, it is marked on October 16.

Every year on October 17th, people worldwide mark the International Day for the Eradication of Poverty. On this date in 1989, the United Nations Convention on the Rights of the Child (UNCRC) was ratified.

17 October: International Day for the Eradication of Poverty

Every



20 October: World Statistics Day

On October 20th, a global day of



statistics is observed every five years. On October 20, 2010, this day was observed for the first time. The third World Statistics Day was observed this year. The United Nations Statistical Commission established the day to recognize the significance of data trustworthiness and authenticity on a global scale.

21 October: Police Commemoration Day

On October 21, a day of remembrance is held in their honour for police officers who have given their lives in the line of duty.



24 October: United Nations Day



Every year on October 24th, United Nations Day is marked to commemorate the day the UN Charter went into effect. This day has been observed since 1948, and the United Nations General Assembly suggested that

Member States commemorate it as a public holiday in 1971.

24 October: World Development Information Day

Every year on October 24, the world observes World Development Information Day to raise awareness of development issues and the necessity of bolstering international collaboration in order to address them.



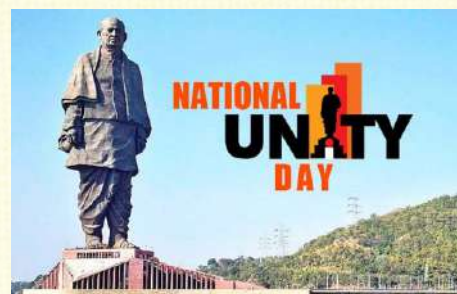
30 October: World Thrift Day



Every year, World Thrift Day is marked on October 31 internationally and on October 30 in India. This day is dedicated to encouraging savings globally.

31 October: Rashtriya Ekta Diwas or National Unity Day

The day after Sardar Vallabhai Patel's birthday, October 31st, is designated as Rashtriya Ekta Diwas, or National Unity Day. He had been crucial in bringing the nation together.



INVITATION OF RESEARCH ARTICLES for PUBLICATION in NESA Journals

INTERNATIONAL JOURNAL ON AGRICULTURAL SCIENCES
ISSN NO. 0976-450X | NAAS RATING 2.60

INTERNATIONAL JOURNAL ON ENVIRONMENTAL SCIENCES
ISSN NO. 0976-4534

INTERNATIONAL JOURNAL ON BIOLOGICAL SCIENCES
ISSN NO. 0976-4518

INDIAN JOURNAL OF UNANI MEDICINE
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MEMBERS ARE REQUESTED TO PLEASE PLANT ONE TREE IN YOUR NEIGHBOURHOOD AND SEND US A SMALL BRIEF WITH PHOTOGRAPH OF THE TREE / PLANT SO WE CAN PUBLISH IN THE NESA E-NEWSLETTER

ENROLL YOURSELF TO NESA NEWSLETTER EDITORIAL BOARD MEMBER

Editorial board members of NESA newsletter will be revised for the year 2023. All the interested applicants may send their curriculum vitae to **Editor in Chief** by **15th August, 2023**.



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National Conference
On
**Recent Trends & Challenges in
GREEN CHEMISTRY, POLLUTION CONTROL AND
CLIMATE CHANGE [GPCC-2023]**

14th – 16th December 2023

Venue: CSIR – National Botanical Research Institute, Lucknow



Jointly Organized by



National Environmental Science Academy (NESA), New Delhi

CSIR-National Botanical Research Institute, Lucknow

Thematic Areas of the Conference - GPCC-2023

Abstracts can be submitted under the following sub-themes

1. Pollution and its Mitigation

- ❖ Air Pollution and Mitigation
- ❖ Water Pollution and Mitigation
- ❖ Soil Pollution and Mitigation
- ❖ Wastewater Utilization
- ❖ Waste Management

2. Climate Change

- ❖ Climate Change Mitigation
- ❖ Climate Smart Agriculture
- ❖ Renewable Energy
- ❖ Application of Remote Sensing and GIS

3. Green Chemistry

- ❖ Alternative and Efficient Sources of Energy
- ❖ Green Technologies for Zero-waste Processes and Products
- ❖ Green Nanomaterials for Environmental and Agricultural Applications
- ❖ Cleaner Production

4. Environment and Biotechnology

- ❖ Environmental Microbiology and Bioremediation
- ❖ Environmental Biotechnology

5. Natural Resource Management

- ❖ Biodiversity Conservation
- ❖ Environmental Degradation and Eco-restoration
- ❖ Geospatial and Ecological Modelling

6. Contemporary Areas

- ❖ Environmental Impact Assessment
- ❖ Environmental Risk Management
- ❖ Environmental Protection
- ❖ Environmental Sustainability and Development
- ❖ Environmental Education and Sustainable Developments Goals

SUBMIT ABSTRACT
nesalucknowconference2023@gmail.com

IMPORTANT DATES

Conference Dates	14th to 16th December, 2023
Registration and Abstract Submission Starts:	10.07.2023
Last Date of Registration without late payment:	31.10.2023
Abstract submission Deadline:	31.10.2023
Intimation of acceptance of abstract:	07.11.2023

REGISTRATION

	Regular Registration (Till 31.10.2023)	Spot Registration* (After 31.10.2023)
Academicians & Scientists	INR 5000.00	INR 6000.00
Research Scholars/ Fellows	INR 2500.00	INR 3000.00
Students (PG)	INR 1500.00	INR 2000.00
Corporate Delegates	INR 10000.00	INR 12000.00

PAYMENT

Name: National Environmental Science Academy
Bank Name & Address: Bank of Maharashtra,
Kalkaji Branch, New Delhi-110019
Account Type: Current Account
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LUCKNOW CONFERENCE SECRETARIAT (GPCC-2023)
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