



Holistic Environment



# Webinar Report

## World Ozone Day, 2020

OZONE for LIFE: 35 years of Ozone Layer Protection

*Organised by:*

JNU ENVIS Resource Partner on Geodiversity & Impact on Environment  
School of Environmental Sciences, Jawaharlal Nehru University  
New Delhi - 110 067

September 16, 2020

# World Ozone Day

## OZONE for LIFE: 35 years of Ozone Layer Protection

---

The School of Environmental Sciences celebrated World Ozone Day, 16<sup>th</sup> September, 2020. On the occasion, a webinar was organized on the theme '**Ozone for Life**' in collaboration with the JNU-ENVIS Resource Partner and the Young Holistic (YoHo) group, SES, Jawaharlal Nehru University, New Delhi.

The panel included very eminent national and International researchers such as **Dr. K J Ramesh**, Ex-DG IMD, India, **Prof. Madhoolika Agarwal**, BHU, Varanasi, India, **Prof. Lisa Emberson**, University of York, U.K., **Prof. Vinayak Sinha**, IISER, Mohali, India, **Prof. U.C. Kulshrestha**, Dean SES & JNU ENVIS Coordinator, **Ms. Richa Sharma**, YoHo lead SES, JNU, The Young Holistic leader YoHo **Ms. Ankita Katoch** represented the student group, **Ms. Richa Sharma**, YoHo lead SES, JNU, **Ms. Swati Singh**, Programme Officer ENVIS, SES executed the management of the programme.

Professor Umesh Kulshrestha, moderated the panel discussion. It was attended by more than 405 participants, through Google-Meet and Facebook Live platforms. The participants included university students, researchers, faculty members and common citizens from different parts of the country.

# WORLD OZONE DAY



Webinar Date: Sept 16, 2020 | Time: 11.30 am - 1:30 pm



## Theme: OZONE for LIFE 35 Years for Ozone Layer Protection

### Panelist



**DR. K J RAMESH**  
Ex-DG IMD, India



**PROF. MADHOO LIKA AGARWAL**  
BHU, India



**PROF. LISA EMBERSON**  
University of York, U.K.



**PROF. VINAYAK SINHA**  
IISER, Mohali, India



**PROF. UMESH KULSHRESTHA**  
ENVIS Coordinator  
SES/JNU, (Dean)



**MS. ANKITA KATOCH**  
YoHo Lead,  
SES, JNU



**MS. RICHA SHARMA**  
YoHo Lead,  
SES, JNU



**MS. SWATI SINGH**  
Programme Officer  
ENVIS, SES, JNU

Registration Link:

[https://docs.google.com/forms/d/e/1FAIpQLSfXXWfQJbnMn2gd4Q8ahFyH105yTmRcgsNG5-F4WtlCKy2vjQ/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSfXXWfQJbnMn2gd4Q8ahFyH105yTmRcgsNG5-F4WtlCKy2vjQ/viewform?usp=sf_link)

**E-certificate will be provided to participants**

Organized by:



JNU ENVIS Resource Partner on Geodiversity & Impact on Environment  
School of Environmental Sciences, Jawaharlal Nehru University, New Delhi  
Ministry of Environment, Forest & Climate Change, Govt. of India

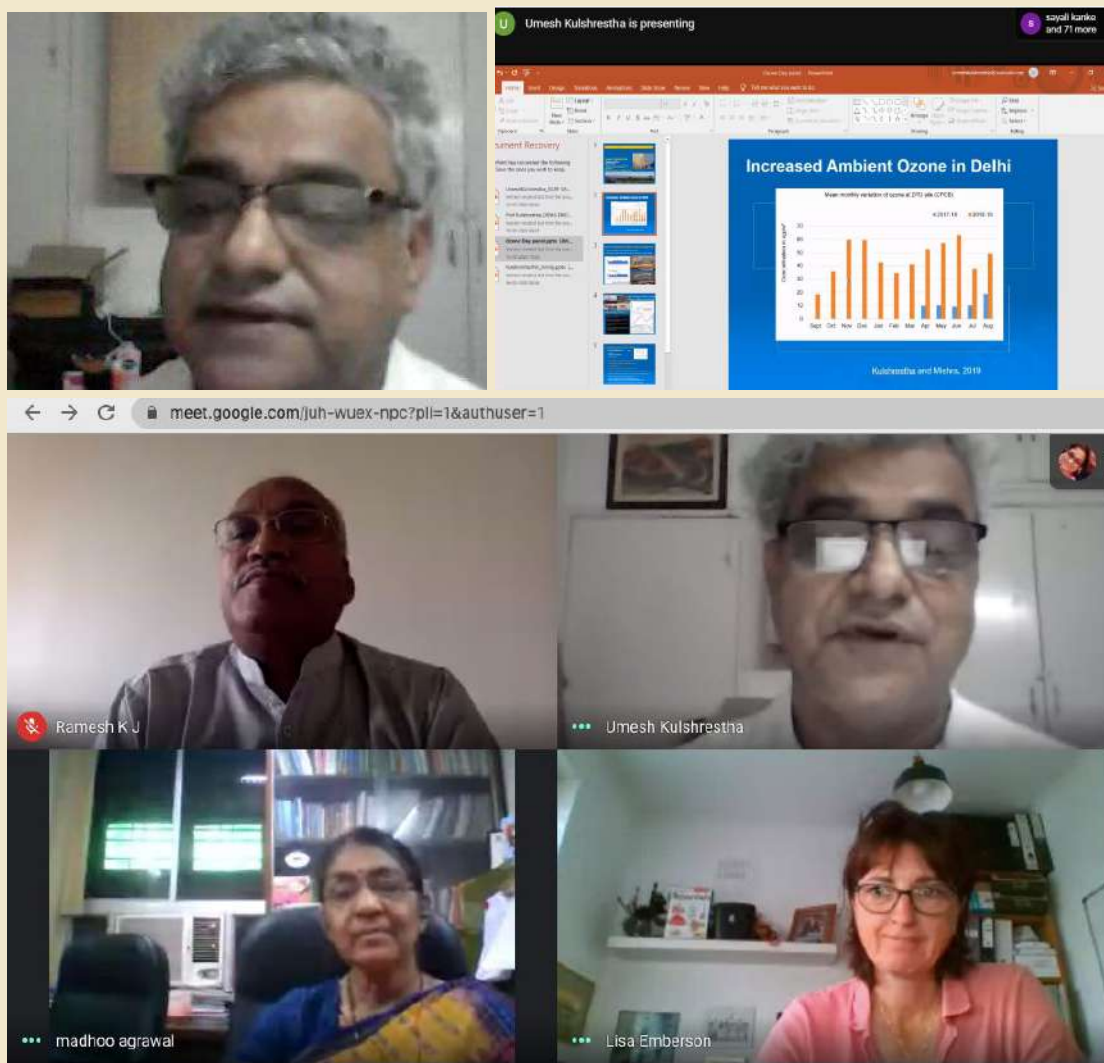


<b>Webinar on World Ozone Day</b>	
<b>Date: September 16, 2020   Timing: 11:30 AM - 01:30 PM</b>	
<b>Panelists</b>	<b>Time</b>
Welcome Address by <b>Prof. Umesh Kulshrestha</b> Coordinator ENVIS and Dean, SES JNU	11:30 AM - 11:40 AM
<b>Dr. K J Ramesh</b> Ex-DG IMD, India	11:40 AM - 11:50 AM
<b>Prof. Madhoolika Agarwal</b> BHU, Varanasi, India	11:50 AM - 12:00 Noon
<b>Prof. Lisa Emberson</b> University of York, U.K.	12:00 Noon - 12:10 PM
<b>Prof. Vinayak Sinha</b> IISER, Mohali, India	12:10 PM - 12:20 PM
<b>Ms. Ankita Katoch</b> YOHO Lead, SES, JNU	12:20 PM - 12:30 PM
<b>Ms. Richa Sharma</b> YOHO Lead, SES, JNU	12:30 PM - 12:40 PM
Concluding Remarks by <b>Prof. Umesh Kulshrestha</b>	12:40 PM - 01:00 PM
<b>Result declaration</b> <b>(Painting &amp; Quiz Competition)</b>	01:00 PM - 01:10 PM
Vote of Thanks by <b>Ms. Swati Singh</b> Programme Officer, JNU ENVIS	01:10 PM - 01:20 PM
<b>Discussion with Participants</b>	01:20 PM - 01:30 PM

**Fig.1: Poster and Schedule of the Webinar widely circulated on the social media platform.**

**Prof. Umesh Kulshrestha, Dean & ENVIS Coordinator, SES, JNU** - Welcomed all the speakers and the participants. He talked about the importance of Ozone Day and how efforts of scientists and policy makers made Montreal protocol successful. Ozone layer destruction has stopped and now healing is taking place, it will take a couple of decades for ozone hole to completely heal. Ozone is a very important subject and every Government has a dedicated cell for ozone research.





**Fig.2: Prof. Umesh Kulshrestha, Dean & ENVIS Coordinator, SES, JNU**

His presentation demonstrated the reason for increasing ambient ozone concentration in Delhi. He showed that the ozone levels were recorded higher in summers of 2019 as well at the industrial sites when the EPCA implemented the total ban on plastic burning and shut down of illegal tire oil units in Delhi. This led to decrease in release of chlorine and hydrochloric acid which in turn helped in decreased quenching of ozone. Finally, the ozone levels were noticed in the range of cleaner sites/rural sites. He showed the pictures revealing the higher visibility and less haze in 2019 in Delhi due to EPCA efforts. He mentioned that the COVID-19 lockdown scenario is a bigger model of the EPCA actions when all types emissions are almost stopped round the globe.

The COVID-19 lock further reduced the nitric oxide emissions which further helped in lesser destruction and higher building up of ozone. Hence, he suggested that Chlorine and Hydrochloric Acid should be added as criteria pollutants. He also emphasized to review the particulates standards for North India vs south India as per the New Normal values of dusty matter during the coronavirus shutdown period. Further, he added the need of standard for speciated particulates.

**Dr. K J Ramesh, Ex- DG IMD, India** – He talked about the Montreal Protocol, its success, how International actions and global handholding is important. Also, he highlighted the importance of technology & knowledge transfer. Steps to mitigate environmental risk disaster and risk reduction. He said that increasingly business goals are aligned with societal goals. He said there has been an increased awareness of climate risk, the risks related to loss to the Nature are still from being included. CO<sub>2</sub> concentrations have gone to an unprecedented level, however due to lockdown there has been precipitous drop in Greenhouse gases due to shutting down of industries. Though the emissions have reduced but the concentrations of GHGs have not decreased. Ozone - depleting substances (ODS) help ultraviolet (UV) rays to reach earth causing skin cancers, eye cataracts, compromised immune system and harm to forests & agriculture lands. Ozone layer has recovered 1% - 3% per decade since 2000. It is projected that by 2030 the Northern Hemisphere, 2050s the Southern Hemisphere and by 2060s the Polar Regions would be healed. Ozone layer protection efforts have also helped to avert 135 billion tonnes of CO<sub>2</sub> equivalent emission between 1990 – 2010. He also mentioned the importance of implementing the Kigali Amendment to the Montreal Protocol, which focuses on phasing down hydrofluorocarbons (HFCs). Kigali Amendment will help protect the ozone layer and avoid global temperature rise. He said consumption pattern of food, other resources have to be changed, pruned down and back to baseline level so that climate actions will be successful.

*As we rightly focus our energies on tackling climate change, the world must be careful not to neglect the ozone layer.*

- Ozone-depleting substances (ODS) allow ultraviolet (UV) rays to reach the earth, increasing the incidents of skin cancers, eye cataracts and compromised immune systems and causing harm to forests and agricultural lands.
- The Day highlighted the role of the Montreal Protocol on Substances that Deplete the Ozone Layer in the phase-out of 99% of ODS in air conditioners, refrigerators and other products.
- As a result of these actions, the 2018 Scientific Assessment of Ozone Depletion found that parts of the ozone layer have recovered between 1% and 3% per decade since 2000.
- At projected rates,
  - the Northern Hemisphere and mid-latitude ozone are expected to heal completely by the 2030s,
  - while the Southern Hemisphere is anticipated to recover by the 2050s, and
  - the Polar Regions by 2060s.

**Emissions Gap – UN Environment Programme**

- The Emissions Gap in 2030 is estimated at 12-15 Gigatonnes (Gt) CO<sub>2</sub>e to limit global warming to below 2°C above pre-industrial levels by the end of this century. For the aspirational 1.5 °C goal, the gap is estimated at 29-32 GtCO<sub>2</sub>e, roughly equivalent to the combined emissions of the six largest emitters.
- It is still possible to bridge the Emissions Gap – but this will require urgent and concerted action by all countries and across all sectors.
- Looking beyond the 2030 timeframe, new technological solutions and gradual change in consumption patterns are needed at all levels. Transformational action can no longer be postponed.

**Earth System Observations during COVID-19 – UNESCO-IOC and WMO**

- The COVID-19 pandemic caused significant impacts on land-based, marine and air observing systems, which is affecting the quality of forecasts and climate services.
- The pandemic demonstrated the vulnerability of components of the global observing system for weather, water, climate and environment and the need for investment to address this; it also

**Fig.3: Presentation by Dr. K J Ramesh, Ex- DG, IMD, India**

## United in Science

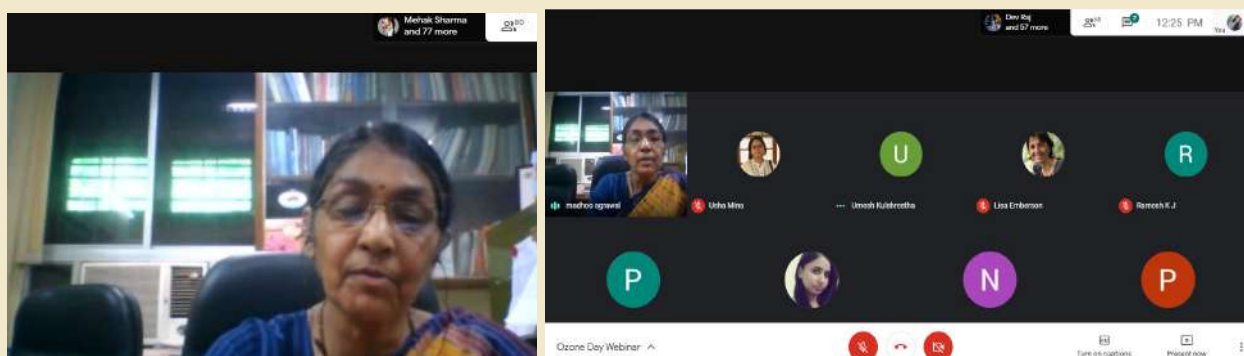
- 2016 – 2020 is set to be the warmest 5 year period on record.
- Lockdown related fall in emissions will not reduce CO<sub>2</sub> concentrations,
- Global fossil CO<sub>2</sub> emission rose 62%, 1990 – 2019.
- Consumption patterns must change to support climate action.
- Climate change impact cascade from Mountain Peaks to Ocean depths.
- Glacier and snow melt threatens water supplies for billions.
- Droughts and floods produce the most impact.
- Sea level rise is accelerating due to polar ice melt.

Global emission of CO<sub>2</sub> and CH<sub>4</sub> are not compatible with emission pathways with limiting global warming at 1.5° C or well below 2°C above pre – industrial levels. The emission gap in 2030 is estimated at 12-15 Gigatonnes (Gt) CO<sub>2</sub>. He mentioned the needs of CAMS and data sets availability for air pollutants.

**Prof. Madhoolika Agarwal, BHU, Varanasi, India** – She mentioned that due to the Montreal Protocol, healing has started. CFCs have not gone out completely. In Montreal Protocol holistic approach is followed. Since 2015, ozone layer depletion is slowing down, because of successful implementation of the Montreal Protocol. 99% ODS have been banned and new chemicals were introduced so that healing continues. The Kigali Amendment talks about banning HFC's as these have very high radiative forcing. Due to the ozone layer hole more UV-B reaches the Earth's surface affecting medicinal plants, human health like cataract, decreased immunity & skin cancer.

She talked about the ozone in the troposphere. Many crops are sensitive to ozone like Wheat, Rice, Maize and Vegetables. Among these, Wheat is very sensitive to elevated levels of ozone. Ozone is an oxidant and when enters the plant body releases free radicals and affects the plants metabolism. Rice is intermediately sensitive and Maize is not very sensitive to ozone concentrations.

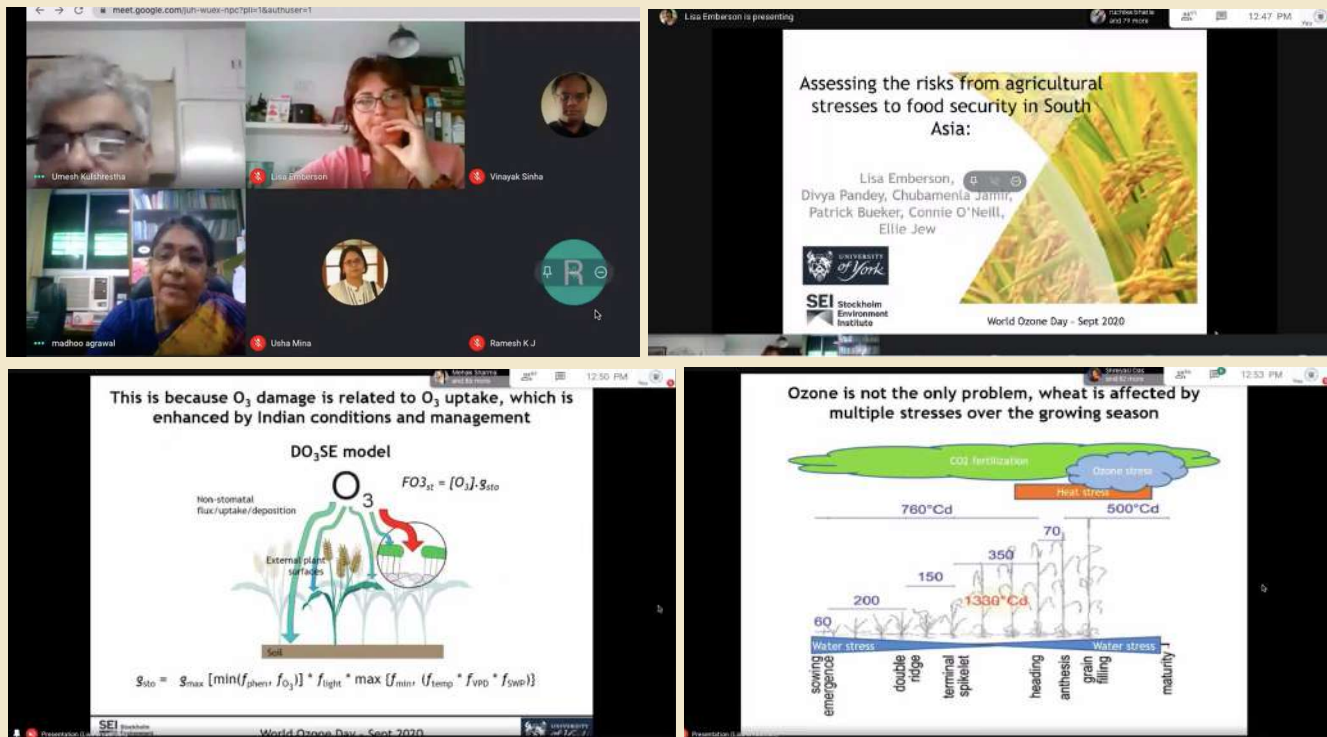
Ozone in the troposphere is also affecting grassland and tree species. Robust species will survive and become dominant, this will have an effect on soil characteristics, microbial species etc. Both food security and ecosystem health would be affected by increased ozone concentration in the troposphere. Ozone has been included as criteria pollutant only in 2009. Precursors of ozone gas have been reduced in the US & UK but still are high in India and entire Asia. She suggested to provide education to the farmers for alternate crop varieties which are more tolerant against higher ozone levels.



**Fig.4: Prof. Madhoolika agarwal, BHU, Varanasi**

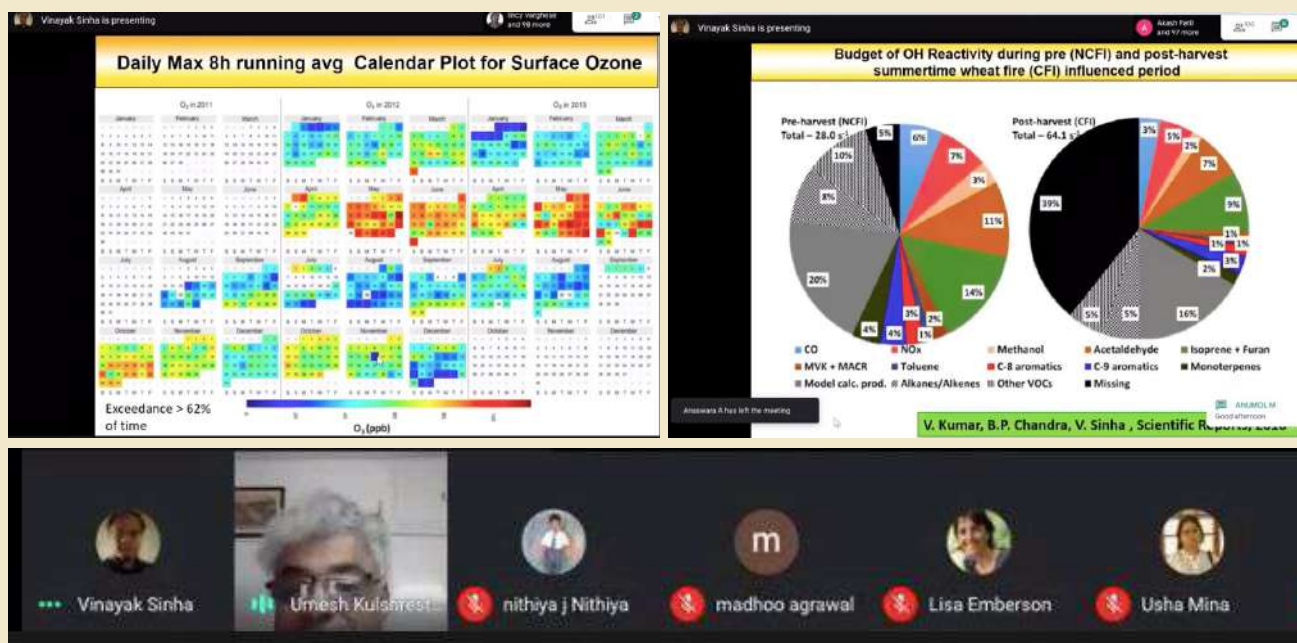


**Prof. Lisa Emberson, University of York, U.K.** – presented the visual slides on the topic ‘Assessing the risks from agricultural stresses to food security in South Asia’. She has done a lot of work on agriculture, stratospheric ozone, food security in the Indian context. She explained about the wheat production loss in India due to the ozone pollution. From 2010 to 2012 the estimated loss of economic crop was US\$ 0.5 to 5 billion caused by 12Tg (12% mean yield loss) total wheat production loss. It clearly shows the potentially serious concern and problem about the Indian agricultural system. China & India will have maximum production loss. Wheat crop is the most sensitive to the O<sub>3</sub> uptake and damage to the crop is enhanced by the Indian climate condition and management. Less ozone pollution and cleaner air may increase the crop productivity, food access, farm yield supply, household goods & services and thus can reduce the price of food.



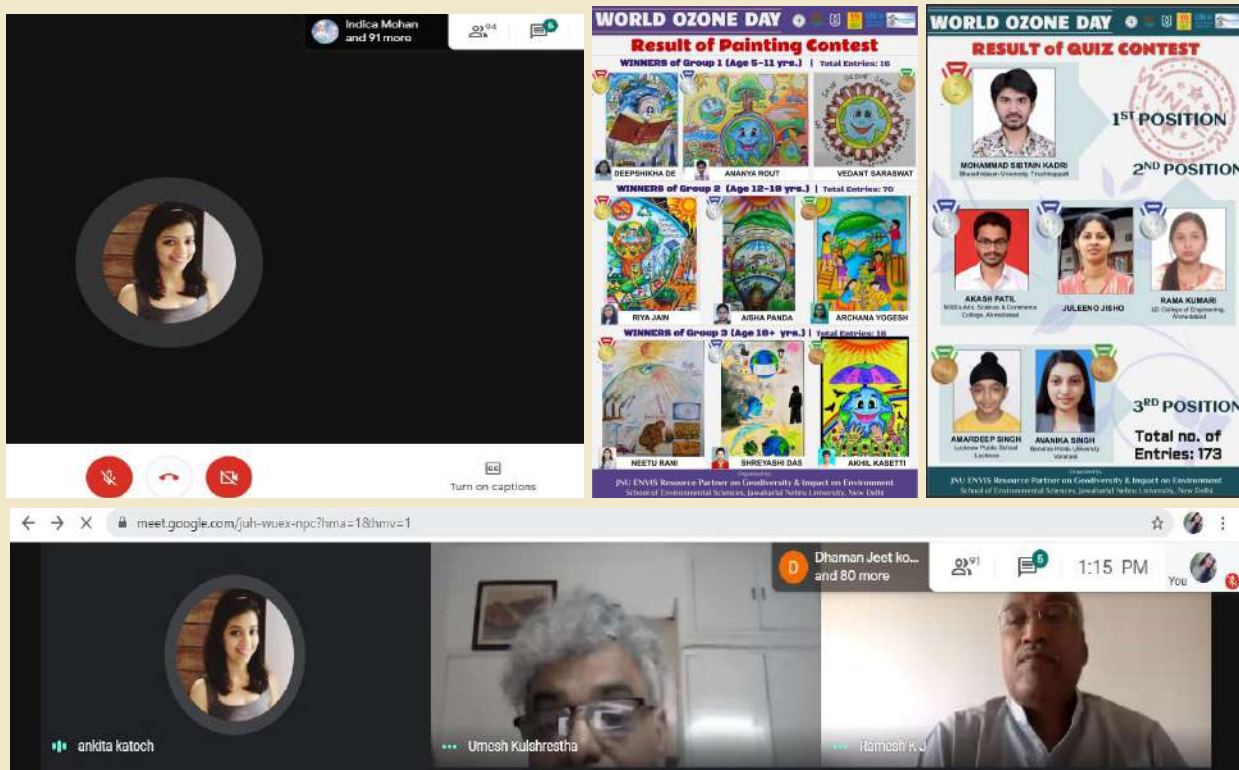
**Fig.5: Prof. Lisa Emberson, University of York, U.K. & Her Presentation**

**Prof. Vinayak sinha, IISER, Mohali, India** – He highlighted the impact of agricultural wheat fire emissions on Ozone and the atmospheric chemistry behind this in the suburban sites of north-western Indo-Gangetic Plains (IGP). Polar Stratospheric Clouds (PSC) formation over the poles leads to buildup of Cl in colder temperature, that's why Cl radicals are very high in Polar vortex (antarctic). In case of surface ozone in IGP, ~50Tg/yr large scale crop residue burning time wheat (April-May) and paddy (October-November) occurs about 4 weeks to 8 weeks respectively.



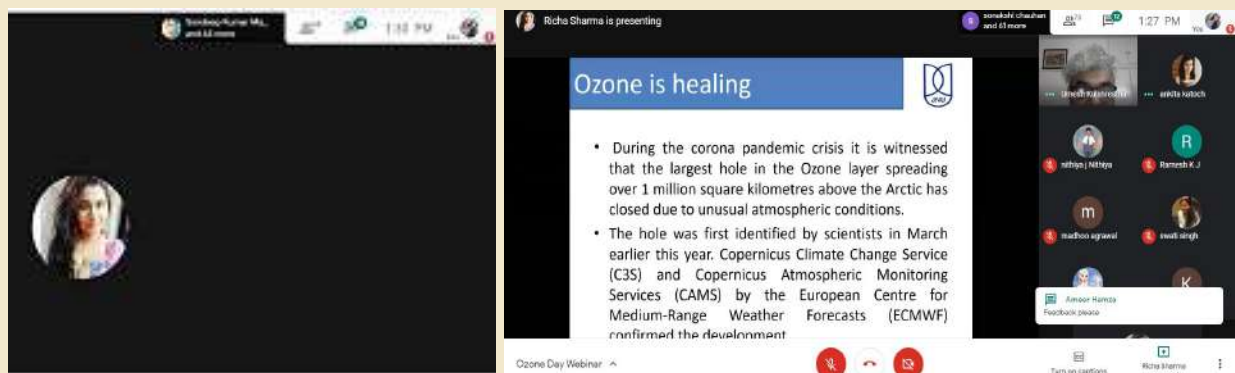
**Fig.7: Prof. Vinayak sinha, IISER, Mohali, India & his Presentation**

**Ms. Ankita Katoch, YoHo lead, SES, JNU** – Ankita Katoch announced the result of online painting and quiz contest winners and she appreciated all the creative painting entries of participants in different age categories. She thanked jury members Dr. Usha Mina, Dr. Sandesha Rayapa and Ms. Richa Sharma.



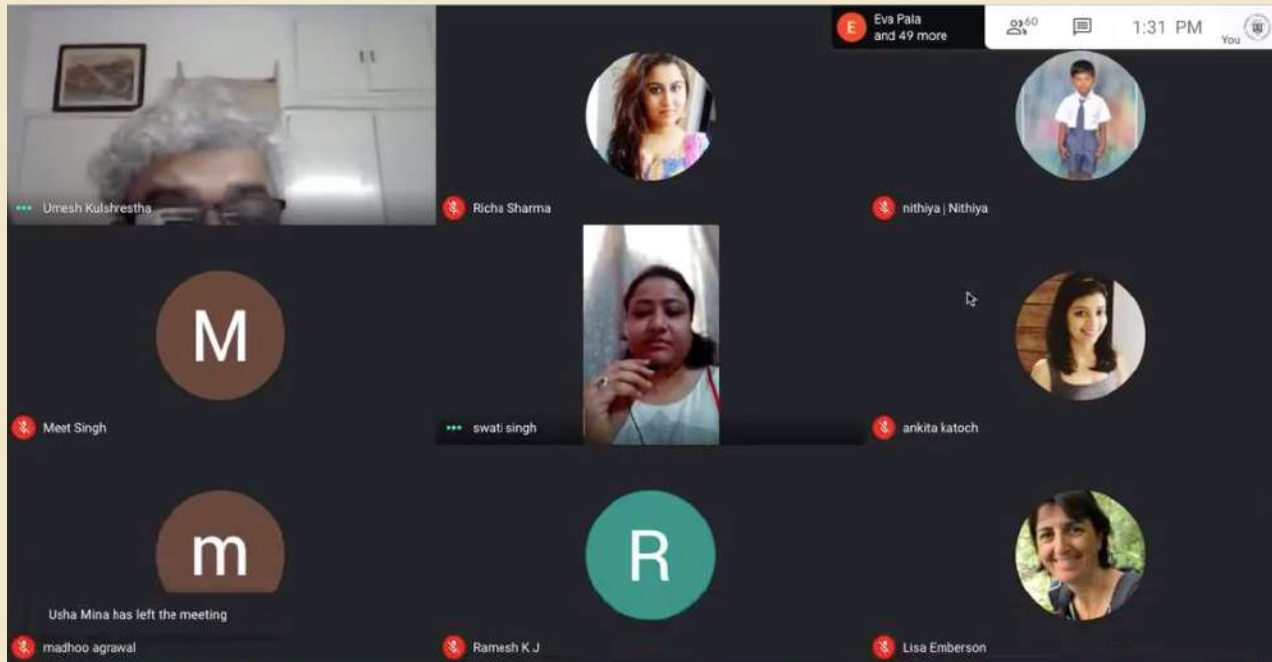
**Fig.9: Ms. Ankita Katoch, YoHo Gyan Lead, SES, JNU announced results online.**

Ms. Richa Sharma, YoHo lead, SES, JNU – explained about the YoHo activities and contribution to executing the programme of ozone day. She presented the slides on healing ozone during and before COVID-19 lockdown. She also mentioned that continuous depletion of the ozone layer can lead us to mass extinction and it is time to achieve the sustainable goals and preserve the ozone layer.



**Fig.9: Ms. Richa Sharma, YoHo Gyan Lead, SES, JNU**

**Vote of Thanks** was extended by **Ms. Swati Singh, Programme Officer, JNU ENVIS** - She thanked all the speakers, participants, students and the faculty for making the event successful.



**Fig.9: Ms. Swati Singh, Programme Officer, JNU ENVIS**



**Fig.9: Panelists & Participants of the Panel Discussion**



The session came to an end with the distribution of e-certificate to all the participants. Very positive feedback was received from the participants.

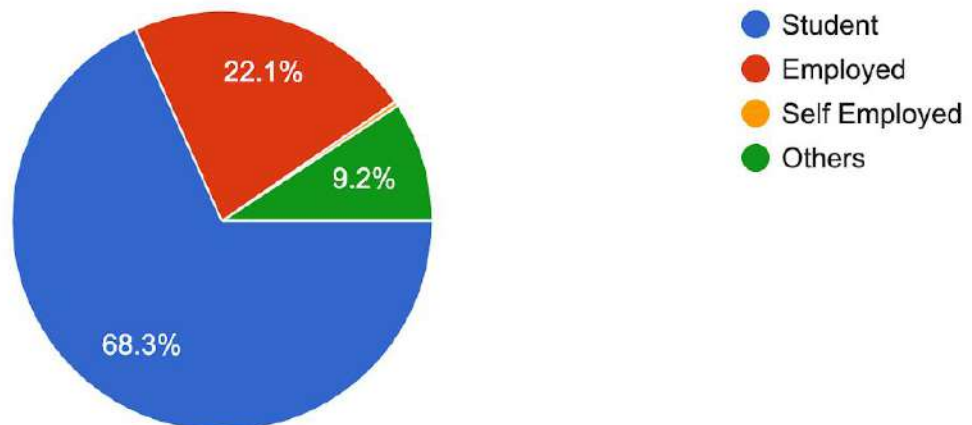
### Recommendations:

1. Chloride and HCl should also be added as criteria pollutants.
2. Need to redefine the particulates standards as per New Normals.
3. Ecosystem services should be pruned down to baseline level for sustainable usage.
4. Enforcement needs to be done for the precursor of ozone gas.
5. More stations of ozone monitoring in rural areas and capacity building of farmers.
6. Standards of ozone concentrations should be made for plantations and vegetations.
7. Tropospheric ozone should be taken up seriously as it can affect our food security, health and ecosystem.
8. Since, the dimming can affect the solar radiation at ground level, regular monitoring of carbon soot is needed.

### Feedback:

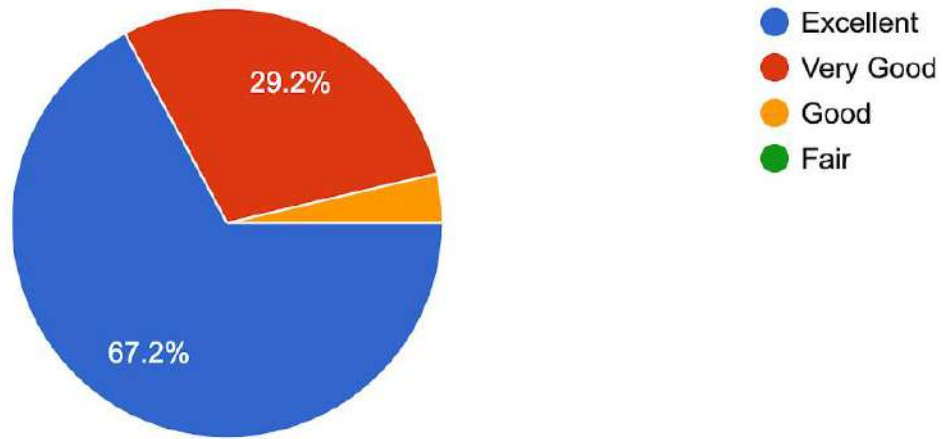
#### Your Profession

271 responses



## How do you rate this Webinar?

271 responses



## Short Line Feedback

207 responses

Excellent knowledge of Speakers

Very helpful session

It's amazing & I have gain some imp. Or recent knowledge

Good Knowledge Enhancement

The ozone layer fitters out most of the sun's harmful UV radiation and is therefore crucial to life on Earth.

It is a great interactive and informative session

Good session

Amazing as well as excellent programme during this COVID time. I also thank to all the speakers as well as guests, nice presentation.

Thanks a lot

Webinar Live Session on the FB page [ENVIS Centre on Geodiversity and Impact on Environment](https://www.facebook.com/jnuenvis/videos/360649961772456/) :  
<https://www.facebook.com/jnuenvis/videos/360649961772456/>

\*\*\*\*\*