iLEAPS | Integrated Land Ecosystem - Atmosphere Processes Study

futureearth
Research. Innovation. Sustainability.

What is iLEAPS?

iLEAPS, a Future Earth Global Research Network,

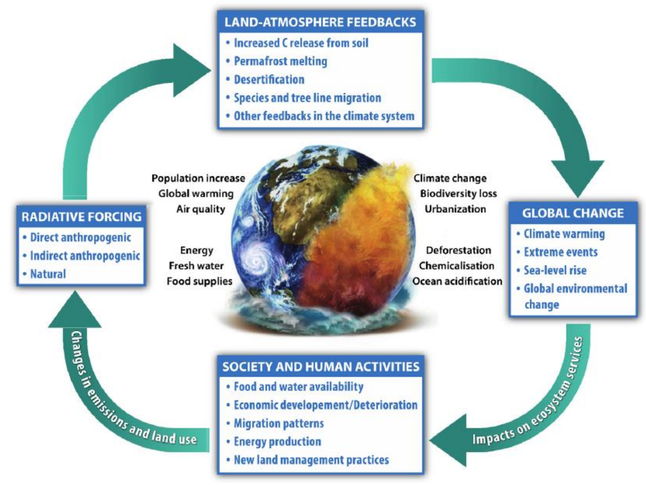
- is a **network** to link scientists to key societal challenges related to Health, Biodiversity, Climate, Food and Fuel security
- acts as a **communication hub** and co-ordinator of world-wide scientific research in the field of land/ecosystem-atmosphere exchanges
- promotes **scientific excellence** through developing international science initiatives that are multi-disciplinary
- promotes **leadership** in science through capacity building in developing countries as well as through its Early Career Scientists network

What are iLEAPS' interest?

iLEAPS researchers study the exchange of water, energy, carbon and other trace species between the land surface and the atmosphere.

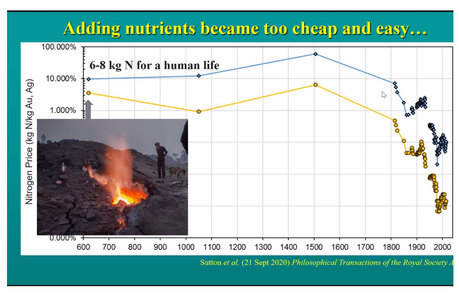
The work contributes to:

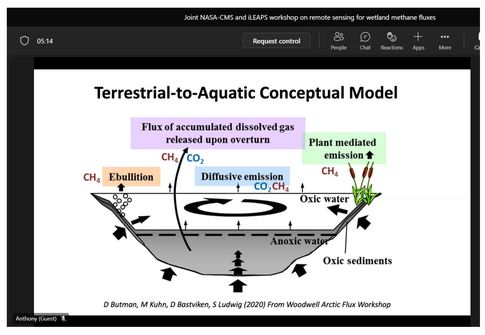
- **Urban living**: mitigation options for air pollution and heat stress
- **Managed land**: Food, land and fuel requirements for increasing human population
- **Forests**: Impacts on global carbon and biodiversity
- **Arctic and mountain regions**: Rapid changes to the physical conditions in response to climate change
- **Arid and semi-arid regions**: Need for food and fuel, in the context of climate extremes



Workshop on Biosphere-Atmosphere (Society) Index Germany, 2019

EC flux capacity-building workshop, South Africa, 2018





Screenshots from iLEAPS Lite Conference 2022 and joint NASA-CMS and iLEAPS workshop on remote sensing for wetland methane fluxes

What does iLEAPS do?

- Holds **Open Science Conferences**:
  - Oxford (September 2017) and **Auckland (January-February 2023)**
- Organises **Online Events** (2021 & 2022):
  - **Lite Conferences** – iLEAPS conferences with different sessions
  - **Earth and Environmental Series** - International day on Climate, Fire, Forest; Earth day; World Ozone day, Soil day, Wetland day, Environment day.
  - **Global Colloquium Series 2022**: Monthly colloquiums by invited expert speakers in the field of Earth and Environment
  - **Joint NASA-CMS and iLEAPS workshop** on remote sensing for wetland methane fluxes
- Organises **workshops**:
  - "Progress on Biosphere- Atmosphere Changes indices" (with bioDISCOVERY)
  - "VOC Fluxes and Chemistry"
  - "Land-atmosphere interactions in the urban climate"
- Sponsors **conference sessions** at the AGU and EGU
- Supports **networking activities** of Early Career Scientists
- Develops **tools**, **methods** and **products** for the iLEAPS community
- ECSN regularly organises webinars and podcasts events. Workshops held
  - "Developing South African capacity in eddy covariance data and analysis"
  - "Air Quality Ecosystem Interactions"

iLEAPS, Future Earth & Collaborations

- Four iLEAPS members in the Future Earth General Assembly including two Governing Council members
- Contributes to Future Earth's Knowledge Action Networks, e.g., Risk & Climate Extremes, Food-Energy-Water NEXUS and Natural Assets
- Has shared interests and events with the WCRP Global Energy and Water Exchanges (GEWEX) project
- Endorses activities and projects: (i) GEIA: Global Emissions InitiAtive (with IGAC); (ii) IBBI: Interdisciplinary Biomass Burning Initiative (with IGAC); (iii) ACPC: Aerosols, Clouds, Precipitation and Climate (with IGAC); (iv) iLAMB: integrated Land Atmosphere Model Benchmarking system (with GEWEX); (v) Canopy Model Intercomparison Experiment (CANEXMIP)

GEIA Global Emissions InitiAtive

IBBI Interdisciplinary Biomass Burning Initiative

ACPC Aerosols, Clouds, Precipitation, and Climate

IGAC International Global Atmospheric Chemistry

Scientific Steering Committee:

Co-chairs: **Ben Poulter** (USA: Carbon Fluxes) and **Sachin Ghude** (India: Aerosol studies, Trace gas measurement)

Members Africa: **David Odee** (Kenya: Tropical forest); **Gregor Feig** (South Africa: Biogeochemistry), Asia: **Jiming Jin** (China: air pollution), **Xianhong Meng** (China: land-atmosphere interactions), **Hisashi Sato** (Japan: ecosystem dynamics & modelling), **Pallavi Saxena** (India: air pollution); Europe: **Silvano Fares** (Italy: biogenic fluxes), **Kirsti Ashworth** (UK: land atmosphere interactions), **Sirkku Juhola** (Finland: social systems and adaptation), **Stefan Wolff** (Germany: climate extremes), **Gemma Purser** (UK, Early Career Representative, VOC emissions); Americas: **Allison Steiner** (USA: boundary-layer processes); Oceania: **Sebastian Leuzinger** (NZ, plant communities)

Regional nodes: **iLEAPS-Africa, iLEAPS-China**, **iLEAPS-India**, **iLEAPS-Japan, iLEAPS-Korea**. **iLEAPS-South America** as a recent new node.

Early Career Scientist Networks: **North America** (Pat Keys); **Latin America** (Stefan Wolff); **Europe & Mediterranean** (Gemma Purser); **Sub-Saharan Africa** (Kerneels Jaars); **South Asia & Middle East** (Saurabh Sonwani) and **SE Asia & Pacific** (Eliani Ezani)

International Project Office: Hosted at the UK Centre for Ecology & Hydrology (Garry Hayman, Semeena Valiyaveetil Shamsudheen, UK)

UK Centre for Ecology & Hydrology

Contact: iLEAPS Project Office, e-mail: ipo@ileaps.org, ileaps@ceh.ac.uk
Join: www.ileaps.org **Early Career Scientist:** www.ileaps.org
@ileaps18, @iLEAPS-ECSN, @SAMEECSN_iLEAPS, @IleapsA
enquiries@ceh.ac.uk
www.ceh.ac.uk