



**CLUVEX**  
CLIMATE UNIVERSITY FOR VIRTUAL EXCHANGES

# Guidebooks and Lectures & lessons learnt

## *CLUVEX-e-Final-Meeting*

16th June 2026

**WP2 Leader - Valeriya Ovcharuk (ONU)  
& WP2 Co-Leader – Laura Riuttanen (UH)  
& All CLUVEX Partners/Hosting teams for VE**



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# Guidebooks and materials

(1) **Virtual Exchange Guidebook (VEG)**: aspects on importance and challenges of VE in climate education and training, CLUVEX project as a reference for the lessons learnt on VEs, planning and implementation of VEs, incl. key considerations for planning VE (incl. work organization, education, students, moderators, technical e-setups, evaluation, assessment, studying and developing VE concept, science communication and scaling up).

(2) **Climate Literacy Guidebook (CLG)**: aspects on how to use the guidebook, VE Week (programme, lectures, tools, group exercise, questionnaires), lectures' short description, tools for visualisation and analysis of climate related data, climate change related concepts and terminology, as well as appendixes (incl. recommended reading, environmental data visualization tools and databases, description of the CLUVEX VE Week – as a course, and CU online courses).

(3) **Climate Messenger Code of Conduct (CMC)**: aspects of the CLUVEX Climate Messenger's education material and exercise, code of conduct during Climate Messenger education, instructions for interaction and communication during the VE Week, instructions for unexpected situations, code of conduct as Climate Messengers after the CLUVEX project is completed



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VIRGINIA STATE UNIVERSITY  
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## Virtual Exchange Guidebook (VEG)

Lessons learnt from the "Climate University for Virtual Exchanges" (CLUVEX) project in 2023-2026

Version 3.0

ERASMUS+ CLUVEX Project Number 101111959

Work Package 02  
Deliverable 2.1

28 February 2025

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## Climate Literacy Guidebook (CLG)

Reading materials for students participating in the CLUVEX Virtual Exchange Week

Version 2.0

ERASMUS+ CLUVEX Project Number 101111959

Work Package 02  
Deliverable 2.2

20 September 2024

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## e-Living Annex to VEG (Virtual Exchange Guidebook)

Version 2.0

ERASMUS+ CLUVEX Project Number 101111959

Work Package 02  
Deliverable 2.5

17 December 2024

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## Climate Messenger Code of Conduct (CMC)

Instructions for Virtual Exchange Week participants

Version 2.0

ERASMUS+ CLUVEX Project Number 101111959

Work Package 02  
Deliverable 2.3

31st March 2024

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# Virtual Exchange Guidebook (VEG)

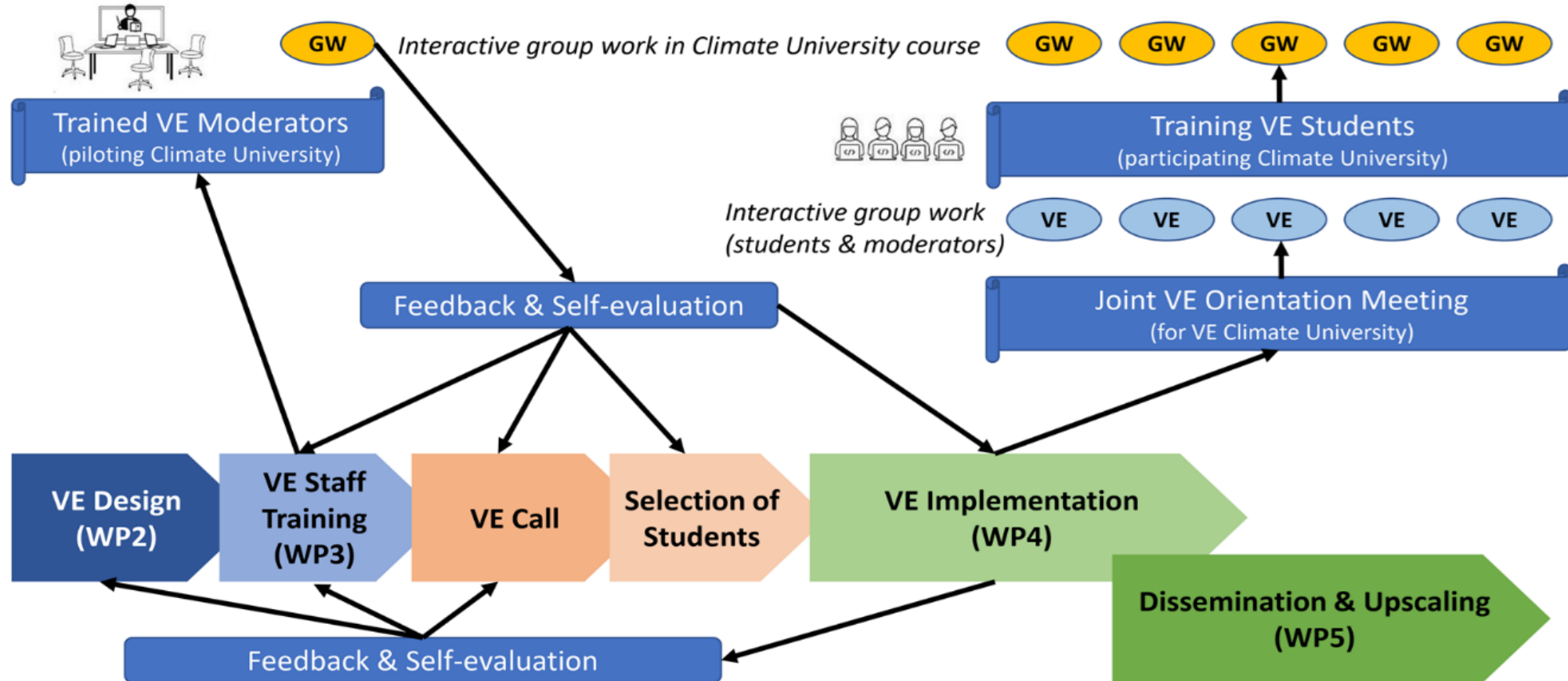
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# Climate University Online Courses Running Lectures & Group Work



*The CLUVEX project VEs workflow showing interconnections between WPs including Calls for VE Weeks for students for VEs, training of moderators and students in VEs, feedback and self-evaluation, and group work.*



**CLUVEX**

CLIMATE UNIVERSITY FOR VIRTUAL EXCHANGES



Miro-Board

Group number: ##  
Group name: NAME  
Group moderator: Name Surname (Country)  
Group members: Name Surname (Country), Name Surname (Country), Name Surname (Country), Name Surname (Country), ...

## Monday DAY 1

Introduction of the group members:  
**Introduction of the group members:**

What can we learn from each other:  
**What can we learn from each other:**

Reflections from the lectures:  
**Reflections from the lectures:**

Ideas for the Climate Horizon:  
**Ideas for the Climate Horizon:**

## Tuesday DAY 2

Reflections from the lectures:  
**Reflections from the lectures:**

Examples from the tool:  
**Examples from the tool:**

Reflections from the discussion:  
**Reflections from the discussion:**

Our dreams:  
**Our dreams**

Ideas for the Climate Horizon:  
**Ideas for the Climate Horizon:**

## Wednesday DAY 3

Reflections from the lectures:  
**Reflections from the lectures:**

Examples from the tool:  
**Examples from the tool:**

Reflections from the discussion:  
**Reflections from the discussion:**

Ideas for the Climate Horizon:  
**Ideas for the Climate Horizon:**

## Thursday DAY 4

Reflections from the lectures:  
**Reflections from the lectures:**

Examples from the tool:  
**Examples from the tool:**

Reflections from the discussion:  
**Reflections from the discussion:**

Ideas for the Climate Horizon:  
**Ideas for the Climate Horizon (ClHor):**

## Friday DAY 5

Reflections from the personal Climate Horizons:  
**Reflections from the Personal/  
Individual ClHor:**

Inputs for the collaborative Climate Horizon from every group member:  
**Inputs for the Collaborative ClHor  
from every group member:**

Collaborative Climate Horizon to be shared with other groups:  
**Collaborative ClHor to be shared  
with other groups:**

Remember to fill in the feedback questionnaire:  
**Remember to fill in the  
feedback questionnaire:**

*Daily (from Monday till Friday; during VE Week) online work of groups of students with moderator in own group area in Miro-board with individual reporting, leaving notes and comments, adding figures and tables, etc.*



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*An example of Miro-board area for Collaborative Climate Horizon group exercise (shared on Friday with other groups).*





**C E R T I F I C A T E**  
This certifies that

(name, surname)  
has attended the Erasmus+ CLUVEX

**Virtual Exchange Week**  
**14 - 18 October 2024**



Hanna K. Lappalainen  
CLUVEX Coordinator  
University of Helsinki,  
FI

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Lead, Climate  
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University of Helsinki,  
FI

Erasmus+ CLUVEX Project "Climate University for Virtual Exchanges" (Project No 101111959)  
<https://www.atm.helsinki.fi/cluvex>



**C E R T I F I C A T E**  
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Moderators



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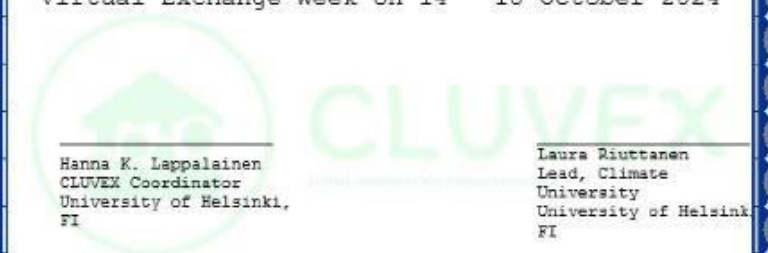
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<https://www.atm.helsinki.fi/cluvex>



**C E R T I F I C A T E**  
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the Erasmus+ CLUVEX project  
Virtual Exchange Week on 14 - 18 October 2024



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Erasmus+ CLUVEX Project "Climate University for Virtual Exchanges" (Project No 101111959)  
<https://www.atm.helsinki.fi/cluvex>



*CLUVEX certificates (a) for students who attended VE Week; (b) for moderators who attended and successfully completed trainings for moderators; and (c) for moderators who attended and moderated successfully the VE week.*



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# VE Week – Work in Groups on Climate Horizon

Learning + Communication + Collaboration Platforms (★)



## DigiCampus for sharing materials for students & moderators:

- VEG – Virtual Exchange Guidebook
- CLG – Climate Literacy Guidebook
- CMC – Climate Messenger Code of Conduct
- Videos and slides of 8 lectures and 3 tools
- Group Exercise "Climate Horizon" & linking to SDGs
- Questionnaires



# Climate Literacy Guidebook (CLG)

Reading materials for students participating  
in the CLUVEX Virtual Exchange Week

Welcome to the "Climate University for Virtual Exchanges"  
CLUVEX Virtual Exchange Week



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# HOW TO USE THIS GUIDEBOOK

During CLUVEX, you will learn basic concepts about climate change and climate expertise competencies, how climate scientists work and communicate, and the importance of joint and inclusive dialogue in reducing climate change and building resilient futures for all. This document serves as a guidebook to better understand the CLUVEX Climate Horizon Group Exercise (GE) planned for the VE Week, and to introduce you to the climate change topics and competencies covered in the CLUVEX project. This document consists of the following main parts:

**Part 1** provides a general description of the VE Week program (including a list of short lectures, and tools for climate-related data visualization and analysis useful for discussing the present, past, and future), the “GE Climate Horizon” topics, and VE Week questionnaires (Pre-task: Connections with climate change; Pre-questions before the VE Week; Questionnaire on Feedback for the VE Week).

**Part 2** introduces lectures to be delivered during the VE Week.

**Part 3** introduces to tools for climate-related data visualization, analysis and interpretation) to be used during the VE Week.

❖ **Part 4** provides concept definitions, and basic information and definitions on general terminology, and terminology used in lectures for climate and climate change, sustainable development, and other topics (note, most, but not all, of these terms will be used in Part 1).

❖ **APPENDIX 1** provides a list of recommended reading, references, and examples (not included in the VE Week) of tools related to environmental and climate sciences.

❖ **APPENDIX 2** provides an introduction to the SmartSMEAR and ERDA data tools.

❖ **APPENDIX 3** describes the VE Week learning outcomes for 1 credit point.

❖ **APPENDIX 4** introduces the Climate University and its online MOOC courses, where you can learn (free of charge!) more about climate change topics after the VE Week.

***Before the VE Week starts, please read this guidebook, familiarize yourself with the lectures and terminology, and complete the pre-task exercise at DigiCampus (refer to Chapter 1.5 for guidance) to share during the first day of the VE Week.***

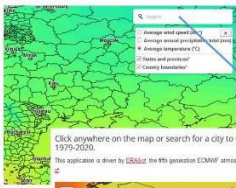




- Average wind speed (ms<sup>-1</sup>)
- Average annual precipitation total (mm)
- Average temperature (°C)

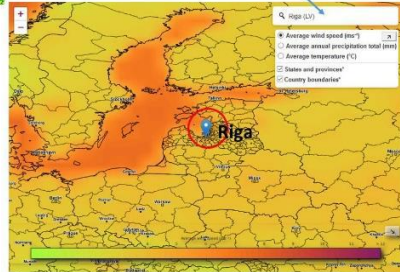
- Temporal aggregation**
- Monthly (climatologies)
  - Annual

- Variable**
- Overview
  - Temperature
  - Precipitation
  - Wind speed and direction
  - Frost days & tropical nights

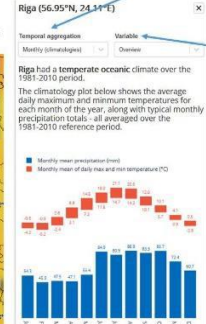


Click anywhere on the map or search for a city to discover a range of local climate statistics for the period 1979-2020.

This application is driven by ERA5, the fifth generation ECMWF atmospheric reanalysis of the global climate, produced by the Copernicus Climate Change Service.

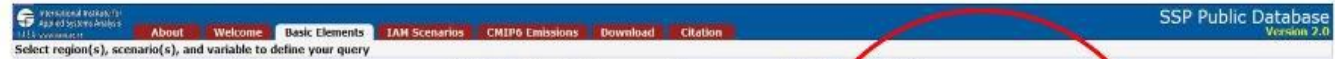


The application is available for use on the Copernicus Climate Change Service website. It is not intended to be used for legal purposes. The Copernicus Climate Change Service is not liable for any damage or loss of data resulting from the use of this application.

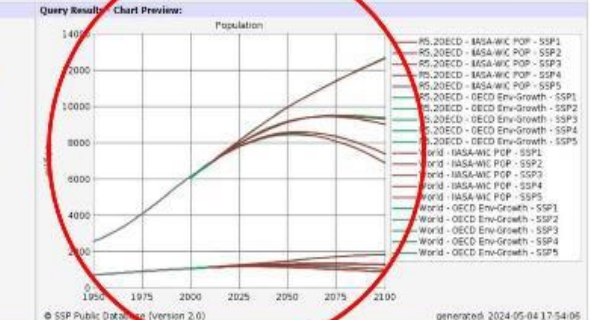
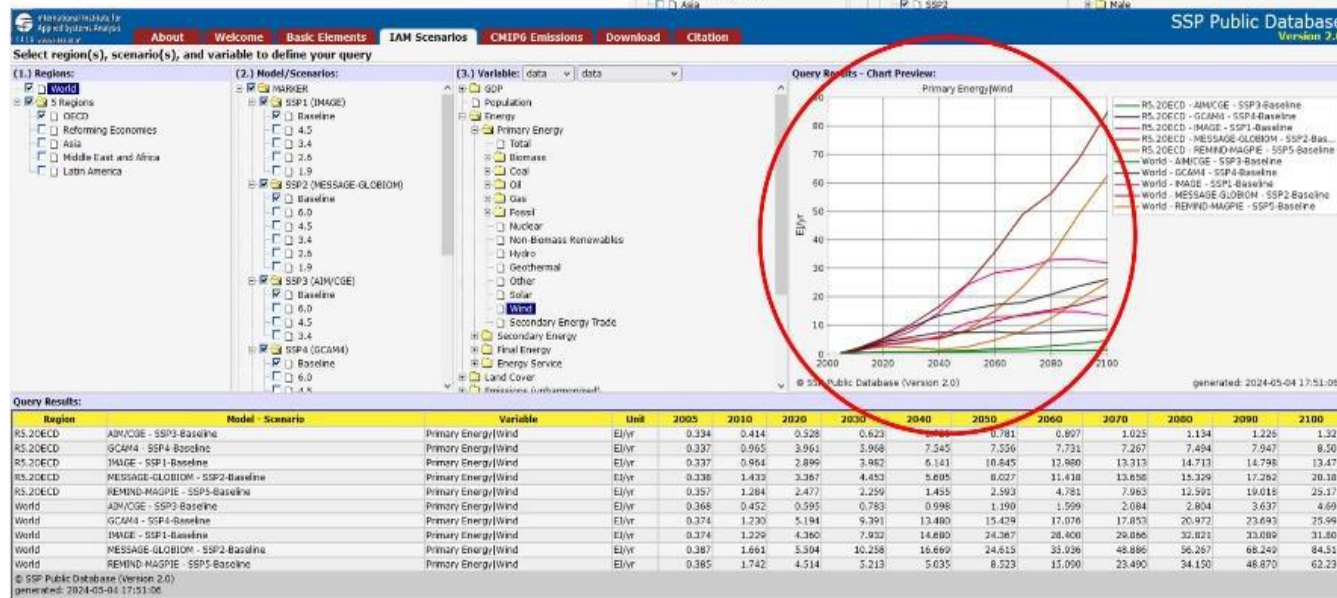


Source: Copernicus, ECMWF, Copernicus Climate Change Service

## Basic Elements



## IAM Scenarios



Year	2055	2060	2065	2070	2075	2080	2085	2090	2095	2100
RS_2000 - AIM/CGE - SSP1-Baseline	1312.130	1323.585	1330.843	1333.802	1332.561	1326.366	1313.976	1296.200	1274.012	1247.453
RS_2000 - GCAM4 - SSP4-Baseline	1286.603	1295.772	1301.900	1305.175	1305.799	1303.763	1299.000	1291.641	1281.738	1268.893
RS_2000 - IMAGE - SSP1-Baseline	1091.430	1069.541	1045.563	1030.383	994.544	968.244	941.543	914.605	887.389	856.830
RS_2000 - MESSAGE-GLOBIOM - SSP2-Baseline	1198.094	1190.340	1177.832	1161.309	1143.576	1116.443	1092.006	1062.861	1031.194	995.367
RS_2000 - REMIND-MAGPIE - SSP5-Baseline	1598.813	1539.107	1607.285	1651.635	1692.992	1730.677	1763.033	1790.331	1812.708	1830.201
World - AIM/CGE - SSP1-Baseline	1314.027	1326.057	1333.325	1336.259	1334.987	1328.746	1316.297	1298.543	1276.187	1249.276
World - GCAM4 - SSP4-Baseline	1289.372	1298.590	1304.753	1308.070	1308.723	1304.562	1301.970	1294.828	1284.733	1272.887
World - IMAGE - SSP1-Baseline	1094.610	1072.847	1049.013	1023.985	998.307	972.170	945.636	918.872	891.834	864.458
World - MESSAGE-GLOBIOM - SSP2-Baseline	1201.766	1193.164	1186.504	1164.225	1144.530	1121.433	1095.106	1064.313	1034.231	999.853
World - REMIND-MAGPIE - SSP5-Baseline	1511.289	1561.975	1609.738	1654.081	1695.378	1733.051	1765.330	1792.534	1814.829	1832.230



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Source: <https://tntcat.iiasa.ac.at/SspDb>

# CLIMATE CHANGE RELATED CONCEPTS AND TERMINOLOGY

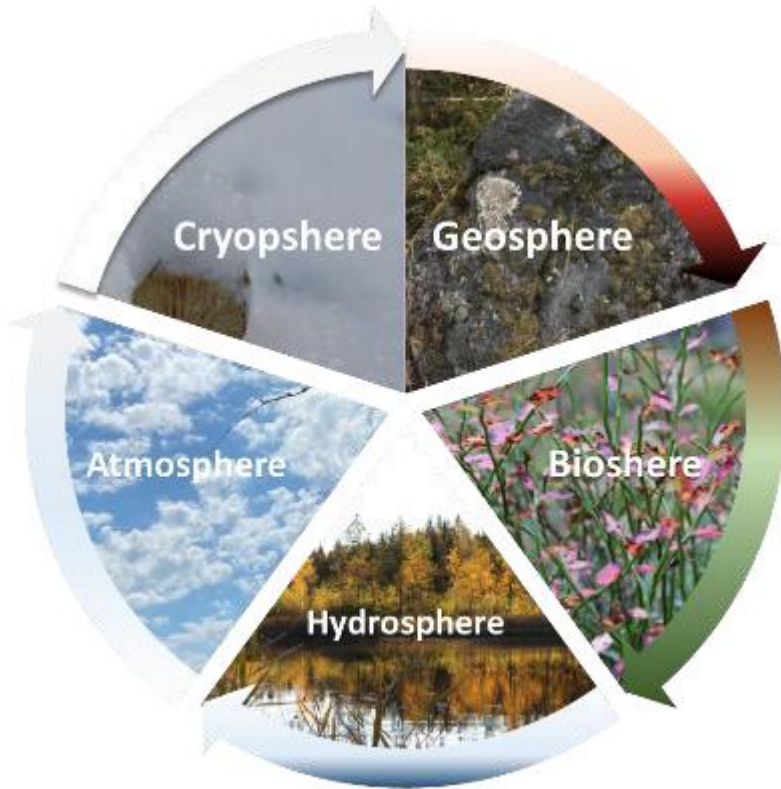
**Anthropogenic activities:** activities caused or influenced by people.

- **Biodiversity:** variety of living organisms, from single-celled to complex life forms, in the ecosystems where they naturally occur.
- **Biodiversity loss:** Imagine Earth like a big puzzle, and each animal and plant is a piece of that puzzle. When animals and plants disappear because of things like cutting down forests or polluting rivers, it's like losing pieces of the puzzle. The fewer pieces we have, the harder it is to see the whole picture and for life to work the way it should.
- **Biosphere:** part of the Earth where living things thrive and live. Biosphere encompasses all areas of the Earth — land, air and water — that support life.
- **Biosphere:** part of the Earth where living things thrive and live. Biosphere encompasses all areas of the Earth — land, air and water — that support life.
- **Climate change:** This is like Earth's fever. It's when the planet gets too hot or too wild because people are burning too many things like gas and coal, which makes the air dirty and heats up the Earth.
- **Ecological restoration:** process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.
- **Ecology:** Has become a widespread term within the 21st century. It is used in reference of almost anything that can be seen in connection to another thing, action, process or entity. Originally the term ecology was used in reference to science that investigated living beings and their environment. The term was coined by Ernst Haeckel in 1866.\*

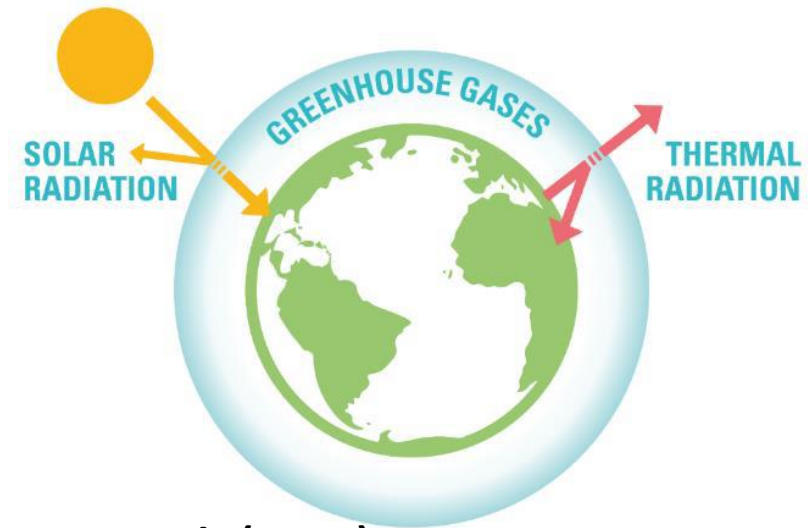


# Climate sciences related concepts' definitions

## Earth's systems and interactions



## Climate system, energy flow and greenhouse gases



## Sustainable Development Goals (SDGs)

### SDG11 – SUSTAINABLE CITIES AND COMMUNITIES

Make cities and human settlements inclusive, safe, resilient and sustainable

<https://sdgs.un.org/goals/goal11>

### SDG12 – RESPONSIBLE CONSUMPTION AND PRODUCTION

Ensure sustainable consumption and production patterns

<https://sdgs.un.org/goals/goal12>

### SDG13 – CLIMATE ACTION

Take urgent action to combat climate change and its impacts

<https://sdgs.un.org/goals/goal13>



CLUVEX

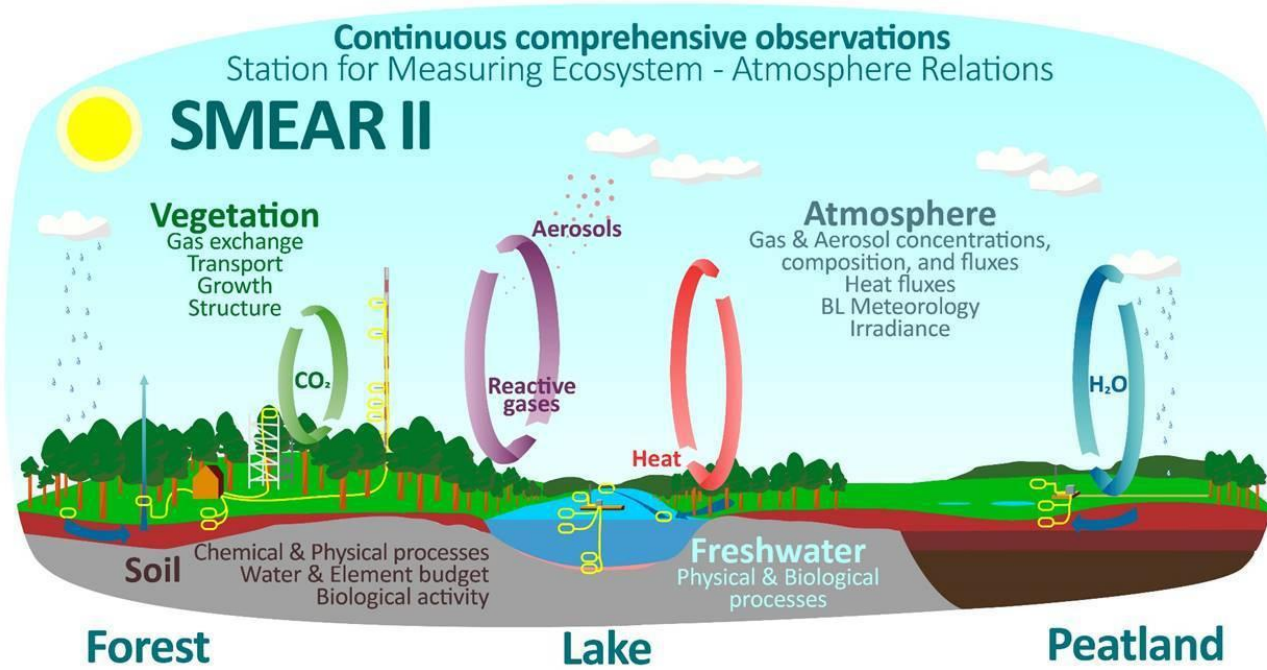
## The Intergovernmental Panel on Climate Change

<https://www.ipcc.ch>



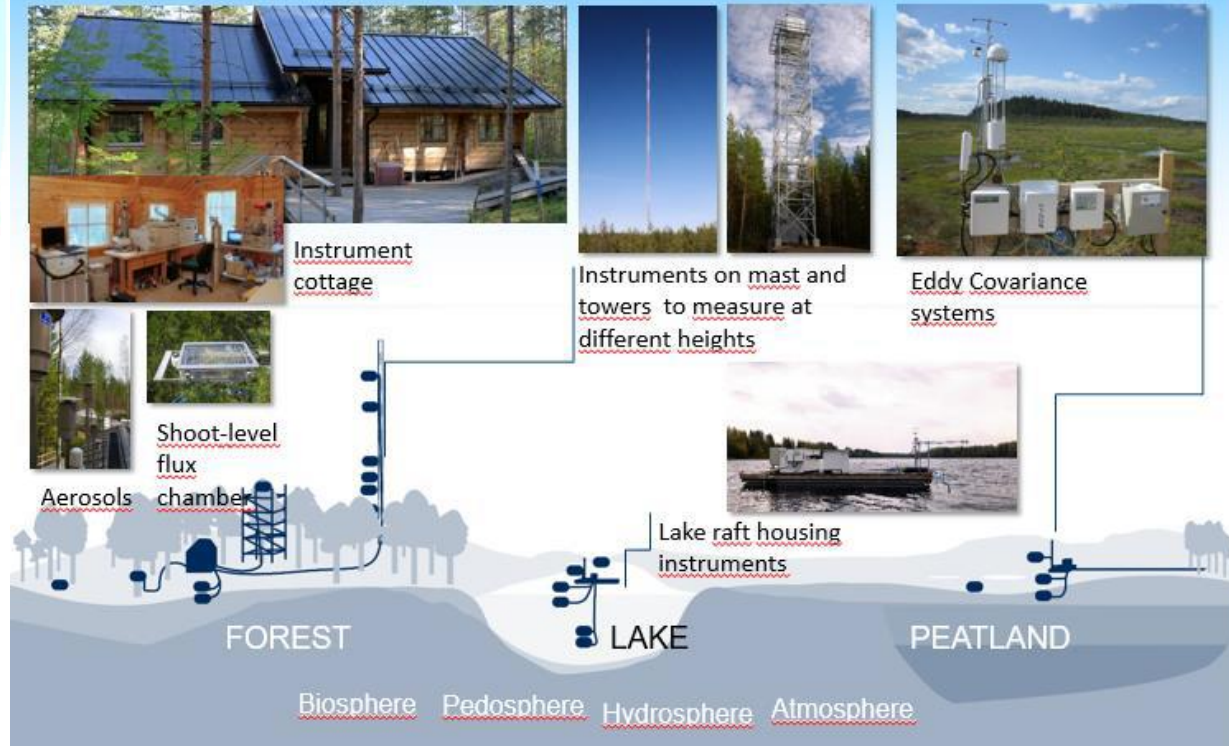
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# APPENDIX 2: ENVIRONMENTAL DATA VISUALIZATION TOOLS AND DATABASES



## Flagship station SMEARII

N 61° 50.845', E 24° 17.686', altitude 180 m a.s.l.



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**CLIMATE UNIVERSITY**

# APPENDIX 4: CLIMATE UNIVERSITY ONLINE COURSES

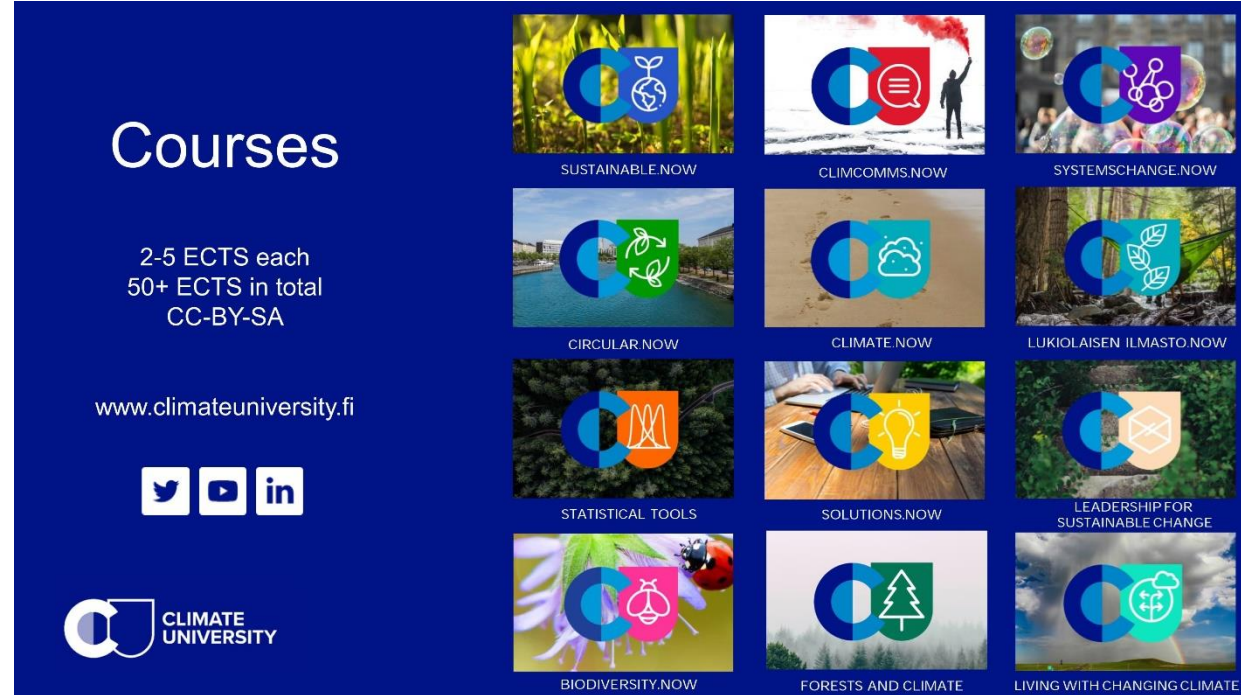
**Students** (BSc, MSc, PhD, PostDocs) who participated in CLUVEX VE Weeks and became the **Climate Messengers** are encouraged to take the Climate University online courses



**Climate University**

*- brave forerunner in educating active sustainability makers for the society and business -*




 CLIMATE UNIVERSITY
















**Courses**

2-5 ECTS each  
50+ ECTS in total  
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[www.climateuniversity.fi](http://www.climateuniversity.fi)

 CLIMATE UNIVERSITY

 SUSTAINABLE.NOW	 CLIMCOMMS.NOW	 SYSTEMSCHANGE.NOW
 CIRCULAR.NOW	 CLIMATE.NOW	 LUKIOLAISEN ILMASTO.NOW
 STATISTICAL TOOLS	 SOLUTIONS.NOW	 LEADERSHIP FOR SUSTAINABLE CHANGE
 BIODIVERSITY.NOW	 FORESTS AND CLIMATE	 LIVING WITH CHANGING CLIMATE

# Climate Messenger

Co

Now, you are, as the Climate Messenger, ready to:

- ✚ Communicate actively on topics like climate change and air quality interactions, weather and extreme events, nature hazards, impacts of climate change on society, and future outlook
- ✚ Discuss mentioned above topics at different arenas like scientific conferences, workshops, meetings and in your local communities
- ✚ Contribute competently to the climate awareness and sustainability strategies in your home organisations and work life
- ✚ Promote, integrate and follow environmentally friendly life- and working style ..... 3
- ✚ Participate actively (with critical and science-based perspectives) in sustainable national and international policymaking, business, and nature resources' uses. .... 3  
..... 4  
..... 4

Instr



3.1. Instructions for unexpected situations (remote disconnection) ..... 6

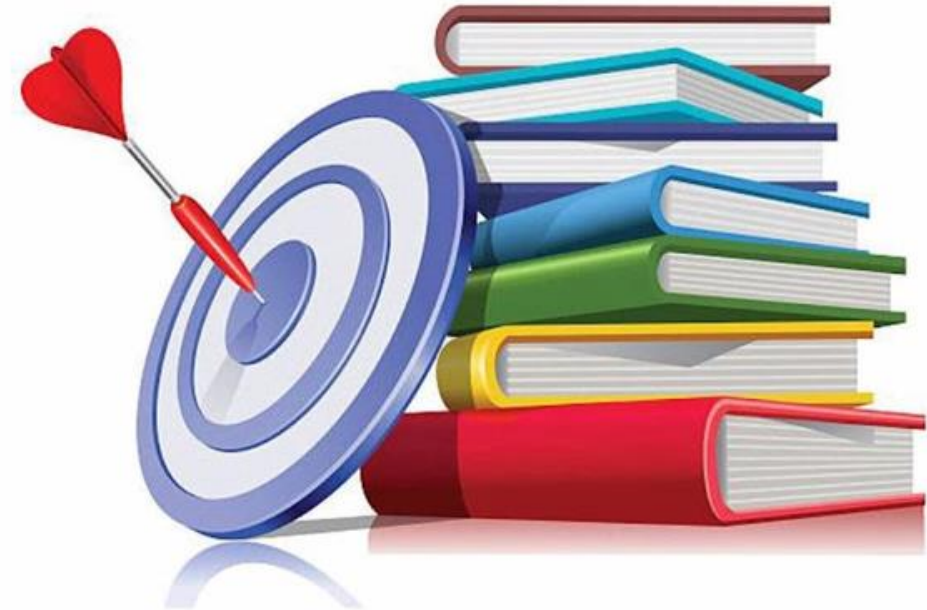
4. Code of conduct after CLUVEX as Climate Messengers ..... 6

# VE Week – Earned Bonuses for Students



## Students awarded the following:

- 1 ECTS credit by University of Helsinki
- CLUVEX Certificate
- Status of Climate Messenger
- Welcome to Climate University Online Courses







CLUVEX

CLIMATE UNIVERSITY FOR VIRTUAL EXCHANGES

*Thank you for your attention!*