

The Climate Encyclopaedia

Thematic fields and Teaching Units

Part A - Content

Former Appendix B of the ESPERE-ENC proposal

Version accepted during the Kick-off meeting 06/07.02.2003

In this version the detailed description of the teaching material has been removed, since this is up to discussions between the scientific partners and the co-operating educational partner and has not yet been decided.

The points listed in a) b) c) have been accepted as guiding theme of the teaching units for the respective thematic field.

1) Tropospheric Processes

scientific partner: MPI-Ch

educational partner: UNIDUI

- a) OH, ozone and NO₃ - oxidation processes in the troposphere.
- b) Biogenic emissions - forest smell/emissions as important organic source
- c) Ozone plumes - the mechanism of summer smog

2) Stratospheric Processes

scientific partner: MPI-Ch

educational partner: UNIDUI

- a) Atmospheric layers - Why is the stratosphere different?
- b) The Ozone hole

3) Urban climate and anthropogenic emissions

scientific partner: UNIJAG

educational partner: a,c) UNIDUI b) UERN

- a) Air pollution due to human activity
- b) Urban climate (heat and water balance in urbanised and industrialised areas, changes of wind, temperature, humidity fields)
- c) Acid rain - history in Europe and status in Asia

4) Weather and global flux

scientific partner: HMS

educational partner: UERN

- a) warm / cold fronts
- b) El Nino / NOA
- c) biometeorology / farmers prediction

5) Aerosols and Clouds

scientific partner: UBP

educational partner: UIO

- a) How are clouds formed? - condensation, growth and evaporation
- b) Aerosols - Where do they come from? Where do they go?
- c) The climate impact of clouds - albedo, droplet sizes and the radiation budget

6) Oceanography

scientific partner: UEA

educational partner: a,b) UERN c) UIO

- a) The global ocean currents
- b) How air-sea exchange helps regulate climate.
- c) The role of chemical, biological and physical ocean processes in regulating climate and how these are perturbed by human activity.

7) Climate and food production

scientific partner: IAMZ

educational partner: UERN

- a) Understanding the past and present
- b) Predicting the future
- c) Adaptation
- d) Drought in the Mediterranean

8) Human influences on climate - Scenarios, impacts and mitigation

scientific partner: CICERO

educational partner: UIO

- a) Emission scenarios and estimates of global warming
- b) Prediction and comparison of climate impact: Europe and India
- c) Climate policy: Which measures follow the predictions?

Interlinked teaching unit: Modelling

How does a climate model work?

field 1,2) chemical modelling (MPI-Ch)

field 4) global circulation models – classification and accuracy (HMS),

field 8) consequences of models (CICERO)

9) Sun and Ice

- a) The Earth's radiation budget and the solar cycle (MPI-Ch)
- b) Climate changes and variability in last 1,000 years (causes, scale, historical evidence, comparison with present time) (UNIJAG)
- c) Paleoclimate and ice cores (MPI-Ch)

Part B - Volume

The volume follows the Technical Annex to the contract [as described in: 4. Workplan, page 5]

Definition of target groups:

The teaching units (TU) will be developed in two levels for students of either 13-15 or 16-18 years.

Contents and volume:

The text compilation is assigned to partners in the consortium who do research in the respective fields. The fields will be broken down into 16+8 teaching units (extension envisioned) suitable for use in schools (2-4 lessons each). The volume of a teaching unit should be in the range of 2-4 web pages background text and 2-3 pages of worksheets, tasks and experiment descriptions for each level. One web page should include 2-3 illustrations on average and not exceed one DIN A4 page of pure text. The work material provided is regarded as a basic deliverable for all involved countries and can be easily extended, depending on the ideas and commitment of teachers on a local scale.

We define (decision 07.02.2003 during Kick-off meeting):

Thematic field = F (total: 8+1 fields)

Levels = L (2 per field)

Teaching units = TU (2-4 per field) average 3

Background text = T (4-8 per TU for L1+L2) average 6

Worksheet = W (4-6 per TU for L1+L2) – average 5 (excluding field 9 and interlinked unit modelling)

Words per background text: average 500

This defines the volume of the total background text per field: 3 TU x 6 T x 500 words = 9000 words

The total volume of background texts to be translated includes for all fields:

8 x 9.000 (+ 1 x 4.500) = 76.500 words per scientific partner (= language)

The volume of the texts per worksheet, also to be translated by the scientific partners, can not be exactly defined because of the special character of a worksheet, but should be significantly! less than 500 words.

Matrix of background text and worksheets (number of pages) for one thematic field:

Field X	L 1		L2		Average T	Average W
	T	W	T	W		
TU 1	2 - 4	2 - 3	2 - 4	2 - 3	6	5
TU 2	2 - 4	2 - 3	2 - 4	2 - 3	6	5
TU 3	2 - 4	2 - 3	2 - 4	2 - 3	6	5
Summe	6 - 12	6 - 9	6 - 12	6 - 9	18	15

average word number per page: 500