



SUSTAINICUM COLLECTION
LEHRMATERIALIEN FÜR BILDUNG ZUR NACHHALTIGKEIT

Energy balance and energy flows in the environment (lecture note)

(Resource ID: 545)

Philipp Weihs

Josef Eitzinger

Philipp Weihs

weihs(at)mail.boku.ac.at

This teaching resource is allocated to following University:

BOKU - University of Natural Resources and Life Sciences Vienna

Institution:

Institute of Meteorology (BOKU Vienna)

<http://www.sustainicum.at/en/modules/view/545.Energy-balance-and-energy-flows-in-the-environment-lecture-note>



Individual work
Plenum



Independent of
the number of
students



up to 1 semester



English, German

Please note: module with excess length - more than
7 lecture units required!



This lecture note serves as a compact theoretical introduction to energy and radiation balances as a knowledge base for related teaching materials (see below).

Surface temperature is closely connected to the energy balance and energy flows, as well as their components: shortwave and longwave radiation balance, sensible heat, soil heat flux, and latent heat (evaporation)

Teaching Tools & Methods



Written material

Learning Outcomes





Understanding radiation and energy balances.

Relevance for Sustainability

Understanding the energy balance is a central component of the greater understanding of meteorological and climatological relationships such as the causes of climate change (amongst others).

Related Teaching Resources

Teaching Material

-  [Energy balance and energy flows in the environment – Influence of latent evaporation energy on ground surface temperature](#)
-  [Energy balance and energy flows in the environment – Influence of shade conditions on ground surface temperatures](#)
-  [Energy balance and energy flows in the environment – Microclimates and water balances of various plant populations](#)
-  [Energy balance and energy flows in the environment- Influence of albedo and shading on](#)

the spatial distribution of ground surface temperatures

 Energy balance and energy flows in the environment- Influence of surface albedo and on ground surface temperature

Sustainability criteria

- Interdisciplinary
- Related to global challenges / needs
- Holistic thinking
- Long-term thinking
- Related to acquiring knowledge

Preparation Efforts

Medium

Access

Free

Funded by

Funded by the Austrian Federal Ministry of Science and Research within the framework of the call "Projekt MINT-Massenfächer" (2011/12)