

### III Sustainable Production and Resource Efficiency

Oral presentation

#### Harvesting Water from Humidity of the Air

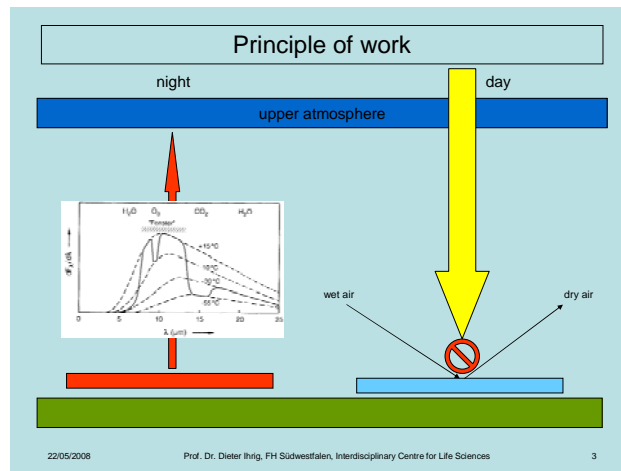
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Lack of drinking water is one of the greatest problems of mankind. Our approach to this urgent problem is to harvest atmospheric water (dew) by using polymer films (LDPE/LLDPE) that are transparent to the atmospheric window at 8 to 13 micron. This allows cooling down a device just by looking through that window into the cold upper atmosphere. Fig. 1 shows the principle of work. First results using a device build by an absorber cooling down a water reservoir at night making use of radiation exchange and sampling water in the morning will be presented. As shown in Fig. 2 it was possible to cool down 5 K lower than the environment temperature. This first results are published in JPCE this spring. [1] At several half deserts it is not necessary to store coldness because the dew point comes up to the environment temperature an night. Preliminary results of a second generation device which is directly sampling water at night will be presented too. This device is much more simple to produce and gives the hope to become economic. It was tested in Summer 2007.

LDPE is a very hydrophobic material with a contact angle of 100 Degrees. For this reason it is very hard to condense water. We developed a method of surface modification which gives stable contact angle of 50 Degrees. This project is funded by the German Federal Ministry of Education and Research (FKZ 02WD0458)

[1] D. F. Ihrig, M. Licht, U. Brunert & J. Eggemann: Winning drinking water using radiation exchange; Physics and Chemistry of the Earth, Elsevier, 33, 86-91



Measurement 17.10.05 - 18.10.05 - Experiment 4 roff FH-SWF

