**Actual ET of Hupsel – step 2**

**Answer sheet**

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| Student (name) |  |

## 1. Characterize weather conditions

In the table below describe the weather conditions in the 7-day period in broad terms per day (or group of days) (similar as you did in step 1). Insert graphs of some of the variables, and describe in words the variation that you observe (keep it concise).

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| --- | --- | --- |
| **Variable** | **Graph** | **Description** |
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Based on your analysis above, try to identify a number of periods of similar weather and concisely describe them. Indicate them with the start and end day (day in August 2009). The number of rows in the table is arbitrary

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| --- | --- | --- |
| **Start** | **End** | **Characterize in words** |
| 04-08 |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
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## 2. Fluxes and partitioning of available energy

Characterize/compute the variation of the fluxes and partitioning over time and between the bare soil and the sugarbeet field. Use fluxes or indicators (e.g. Bowen ratio, evaporative fraction) of your choice (replace the ‘...’ in the table below by the variable you choose).

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| --- | --- | --- | --- | --- | --- | --- |
|  | **Bare soil** | | | **Sugarbeet** | | |
| **Date** | **Variable** | **Variable** | **Variable** | **Variable** | **Variable** | **Variable** |
| … | … | … | … | … | … |
| 04-08 |  |  |  |  |  |  |
| 05-08 |  |  |  |  |  |  |
| 06-08 |  |  |  |  |  |  |
| 07-08 |  |  |  |  |  |  |
| 08-08 |  |  |  |  |  |  |
| 09-08 |  |  |  |  |  |  |
| 10-08 |  |  |  |  |  |  |

Describe your findings concisely below. If you need/like, add some plots.

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## 3. Reference evapotranspiration

Include your values below and/or include a graph that shows the time series of reference ET in mm/day.

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## 4. Actual soil evaporation

Include your values below and/or include a graph that shows the time series of actual ET in mm/day.

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## 5. Comparing actual ET and reference ET

How do actual and reference evapotranspiration compare? Are they identical, is there a fixed offset, or is the difference variable over time. If so, can you related those differences to specific conditions? Discuss values, possibly show a graph.

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## 6. CSM/crop factor for bare soil

What is the overall magnitude the CSM/crop factor for the bare soil field? Is the CSM/crop factor constant over time, and if not, can you explain the variations (or at least bring forward a hypothesis)?

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| --- | --- |
|  | **Comment** |
| **Typical value of the CSM/crop factor (mean, median, …)** |  |
| **Variability of CSM/crop factor from day to day (how much, how, when)** |  |
| **What determines the day-to-day variation?** |  |

## 7. Variation of CSM/crop factor – model for bare soil evaporation

Summarize your findings regarding the CSM/crop factor for grass in such a way that you could use it as simple model to derive grass evapotranspiration from the reference ET, based on a limited number of variables (e.g. rainfall history, air humidity, temperature, wind speed, ...). There is no need to come with a model in the form of an equation. What we need, is some sort of look-up table.

In the table below, distinguish a number of situations with distinct values for the CSM/crop factor.

* Give the typical value for the CSM/crop factor in the first column
* Characterize the conditions with typical values for the relevant variables (columns 2 and further) (e.g. crop factor = … (column 1) when no rain (column 2) and high temperatures (column 3). It is up to you to see how many conditions you distinguish (i.e. how many rows you fill) and how many variables you need to describe a given condition (how many columns you need).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Value of**  **CSM/Crop factor** | **Variable:** | **Variable** | **Variable** | **Variable** |
| … | … | … | … |
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