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Evaporation measurements at the Dead Sea

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- **Interdisciplinary**
- **International**
- **Intercultural**

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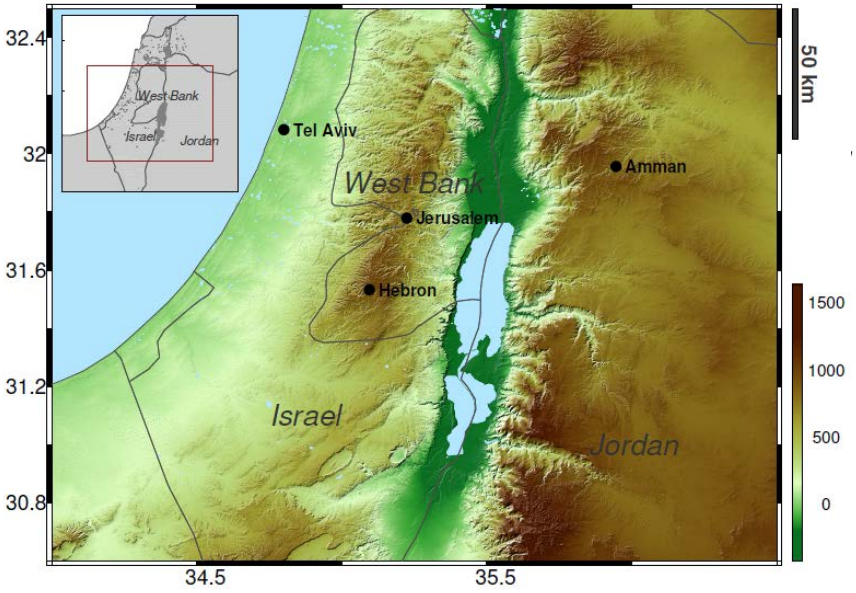
- **Environmental Risks**
- **Water availability**
- **Climate change**

Motivation

$$\Delta V = V_P - V_E + V_{IN} - V_{OUT}$$

- Negative water balance
  - Nearly no inflow
  - Small precipitation amounts
  - High evaporation rates



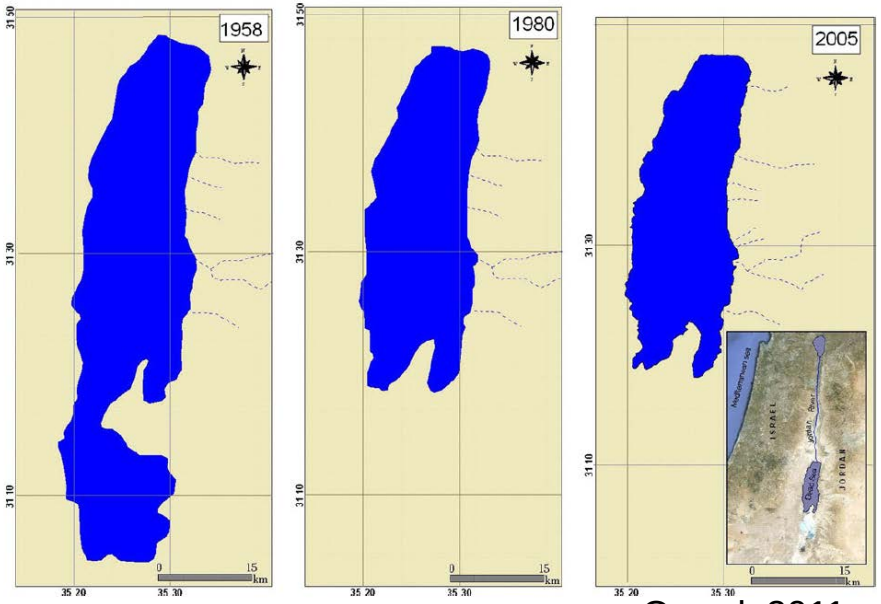
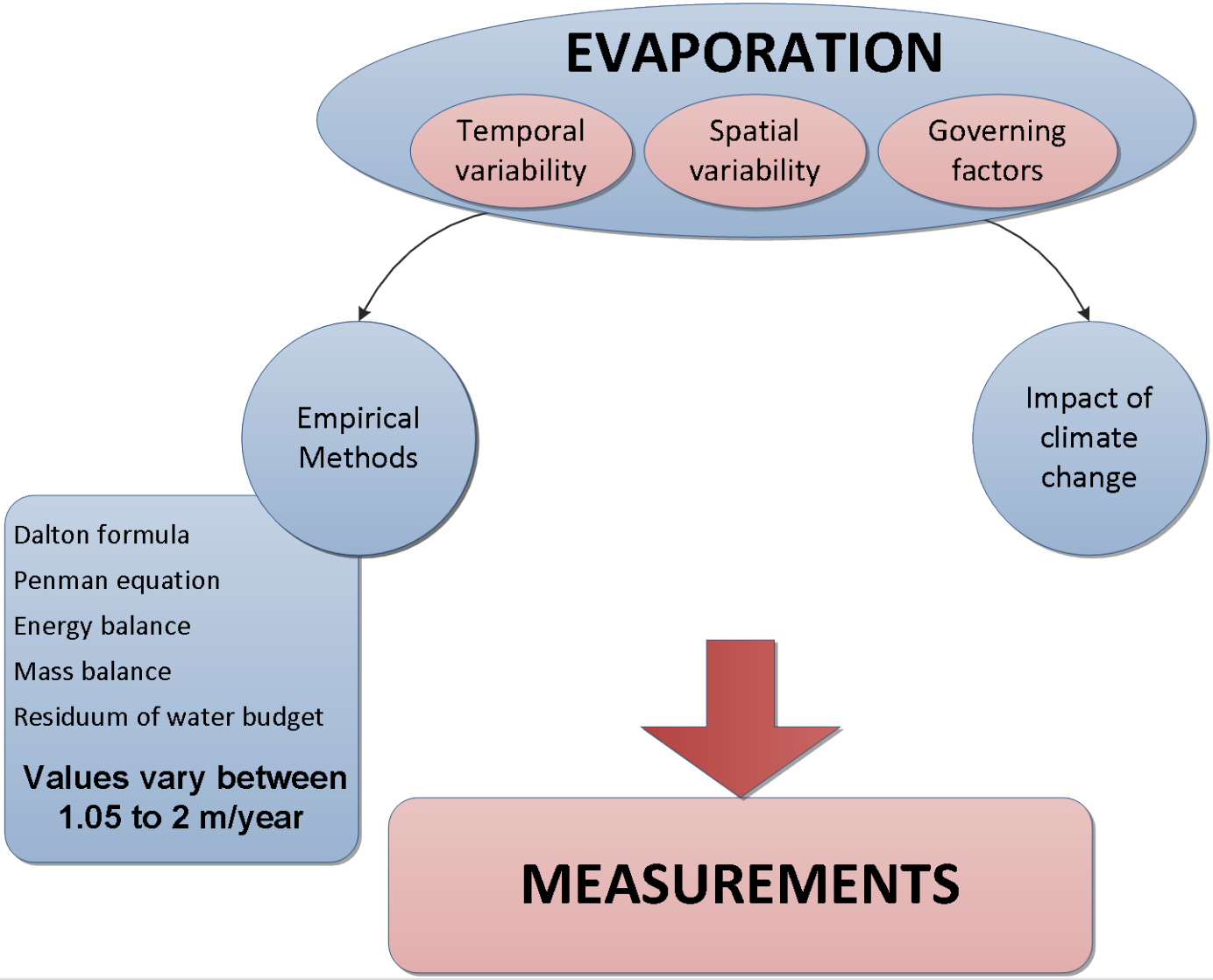
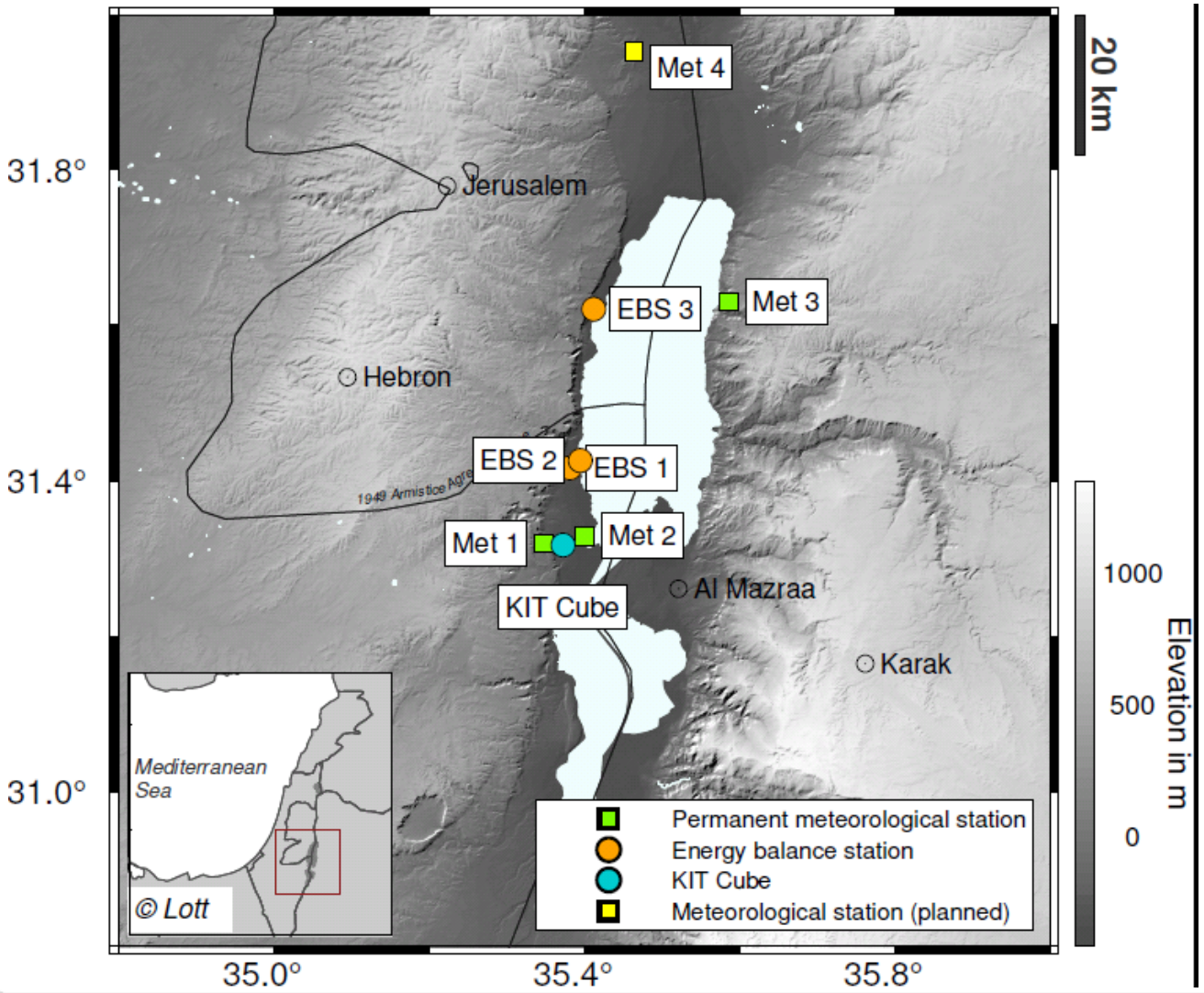


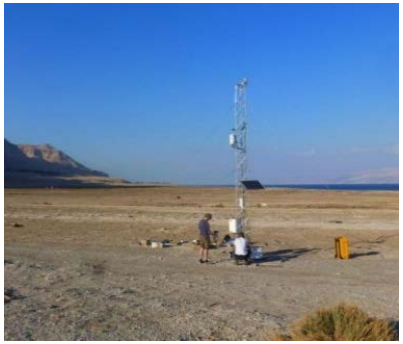
Fig. 2 Sea surface area during three periods, 1950s, 1980, and the beginning of the twenty-first century Oroud 2011

Research Question

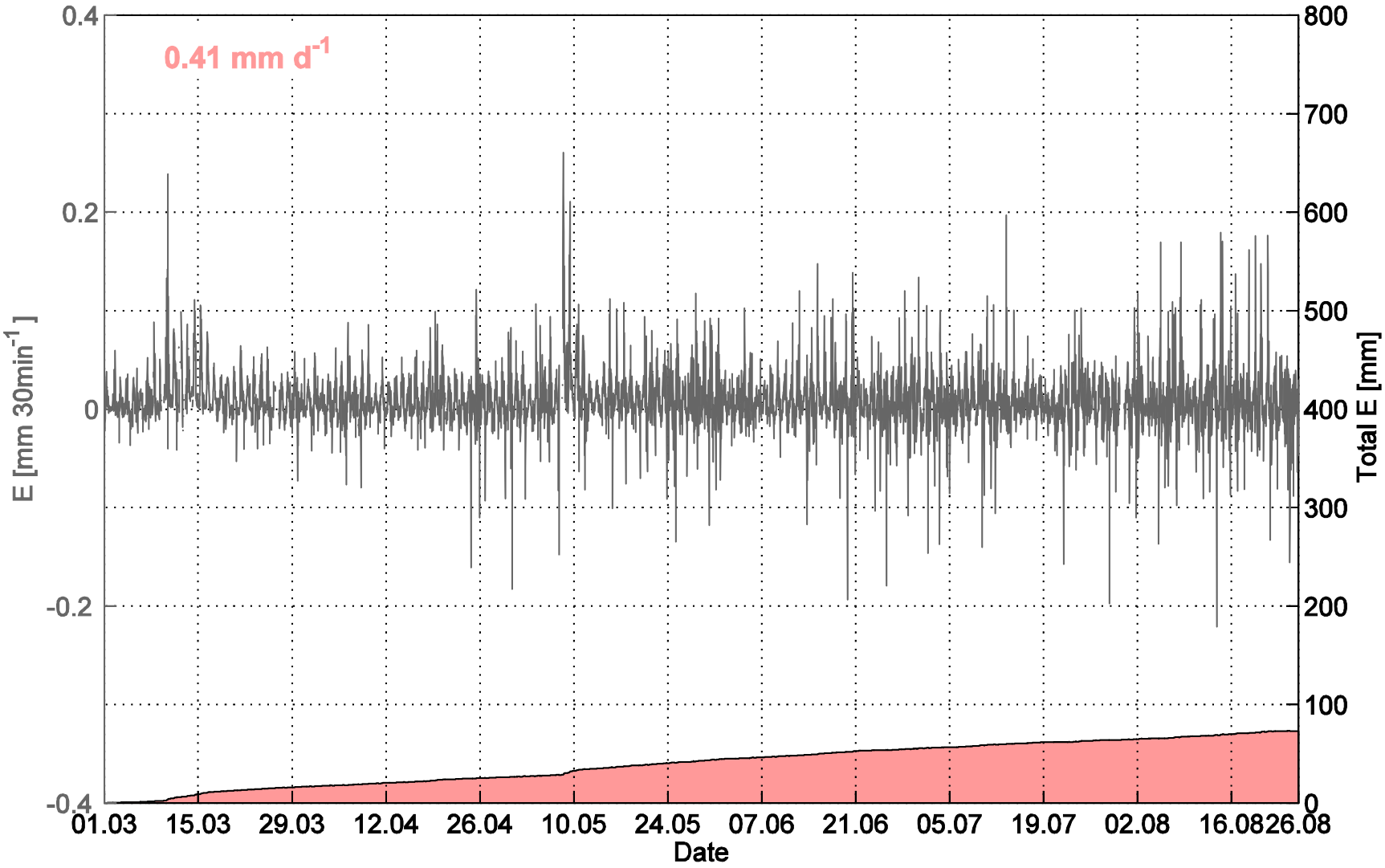


Experimental Setup

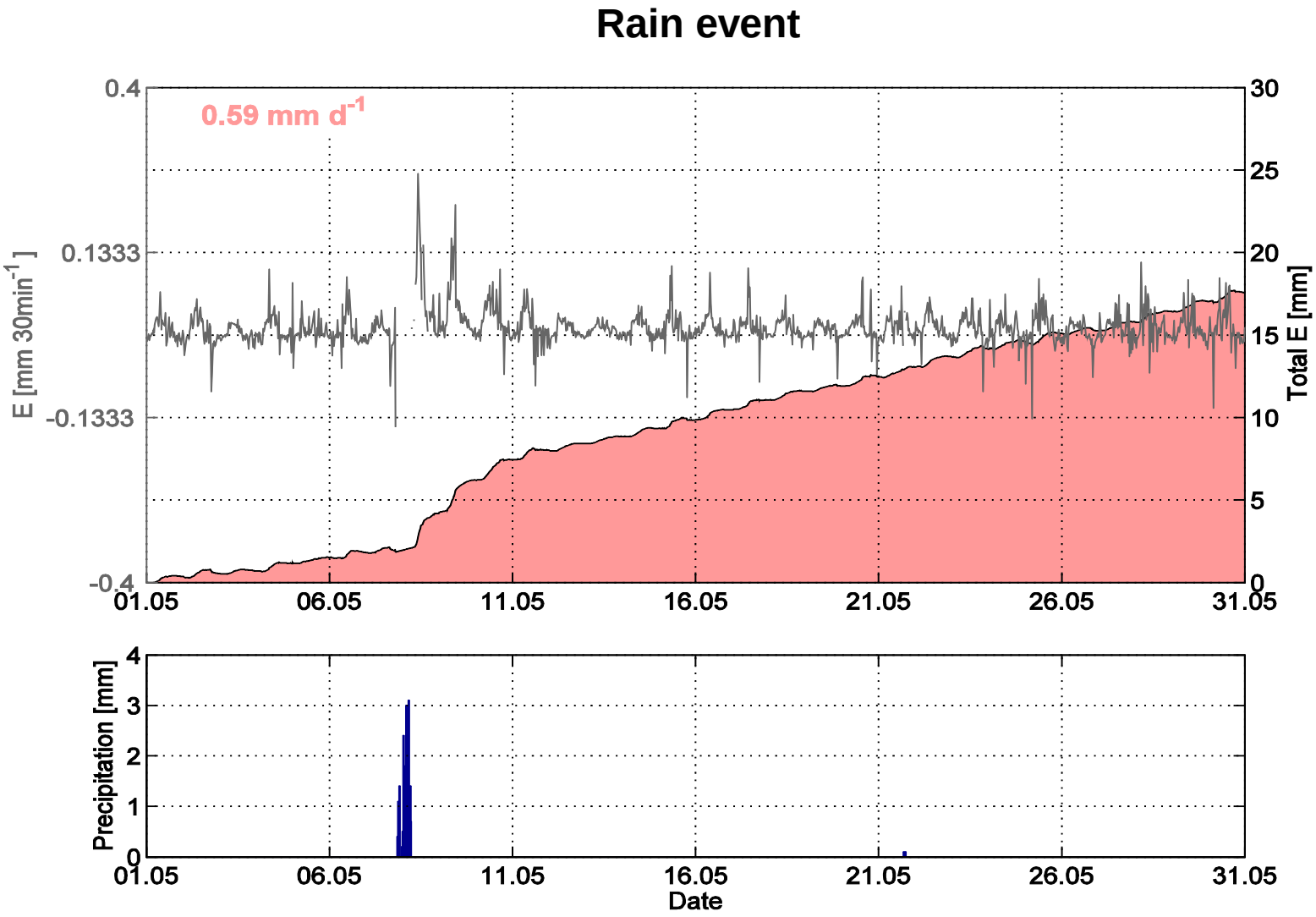




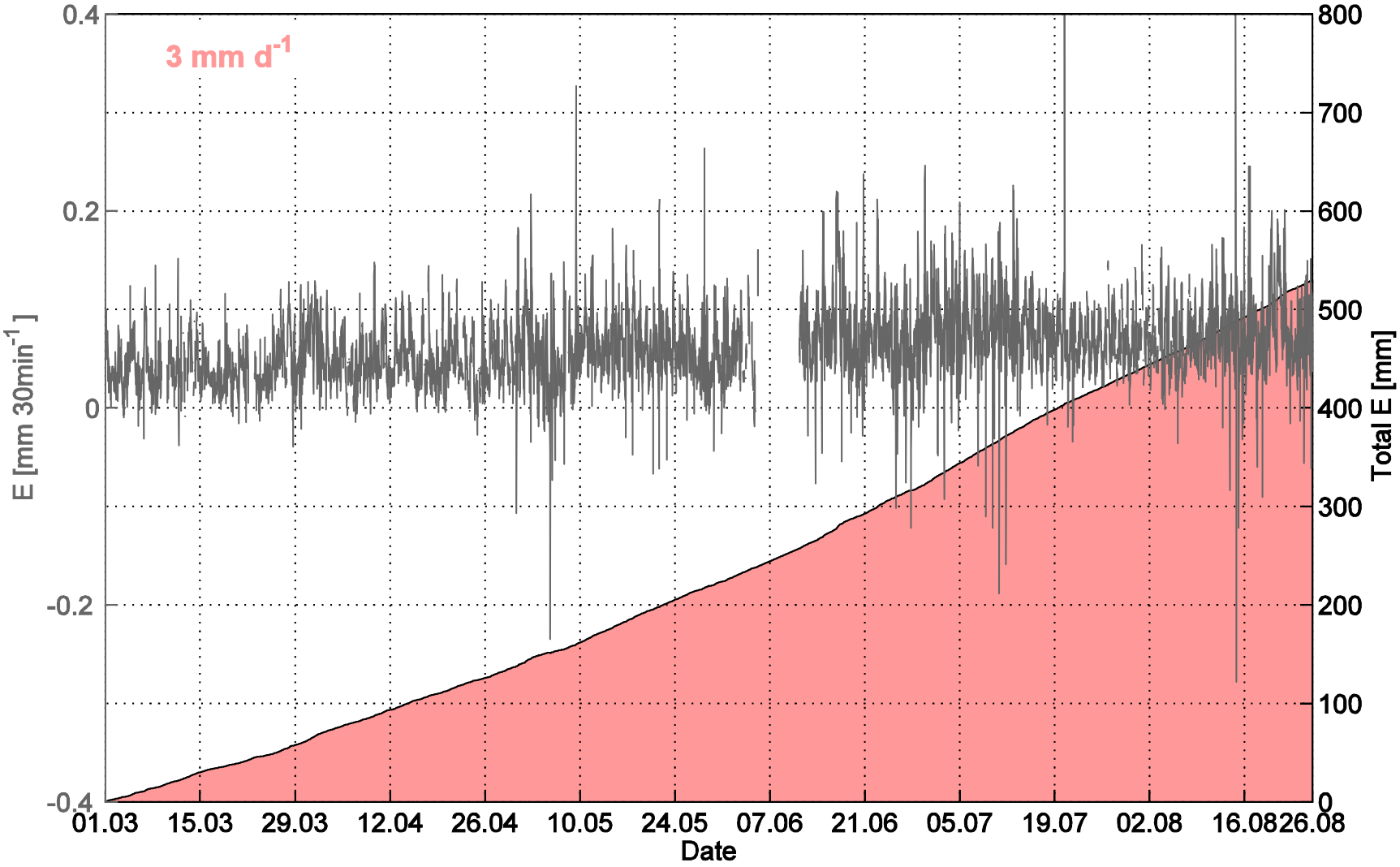
Evaporation - bare soil



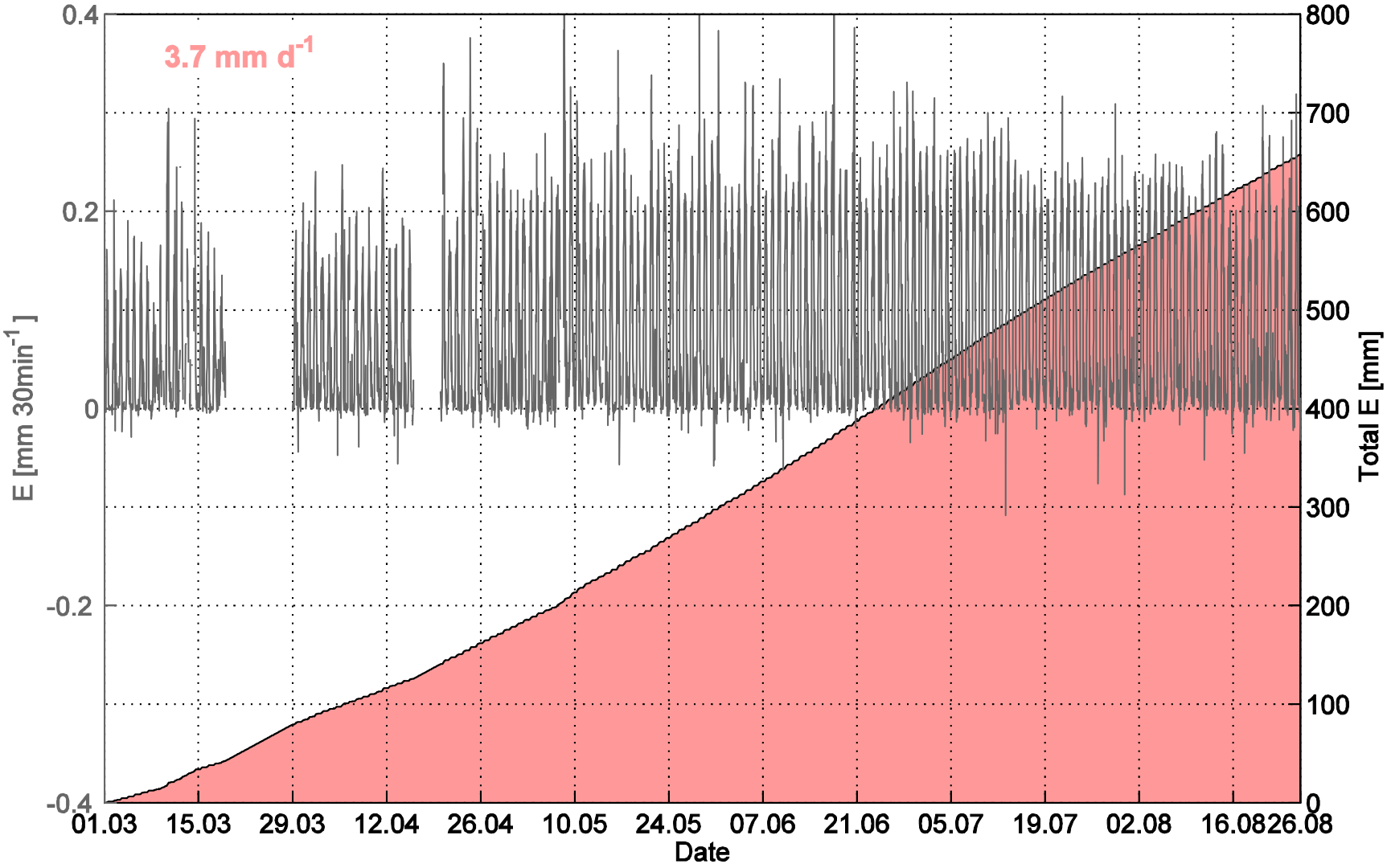
Evaporation - bare soil



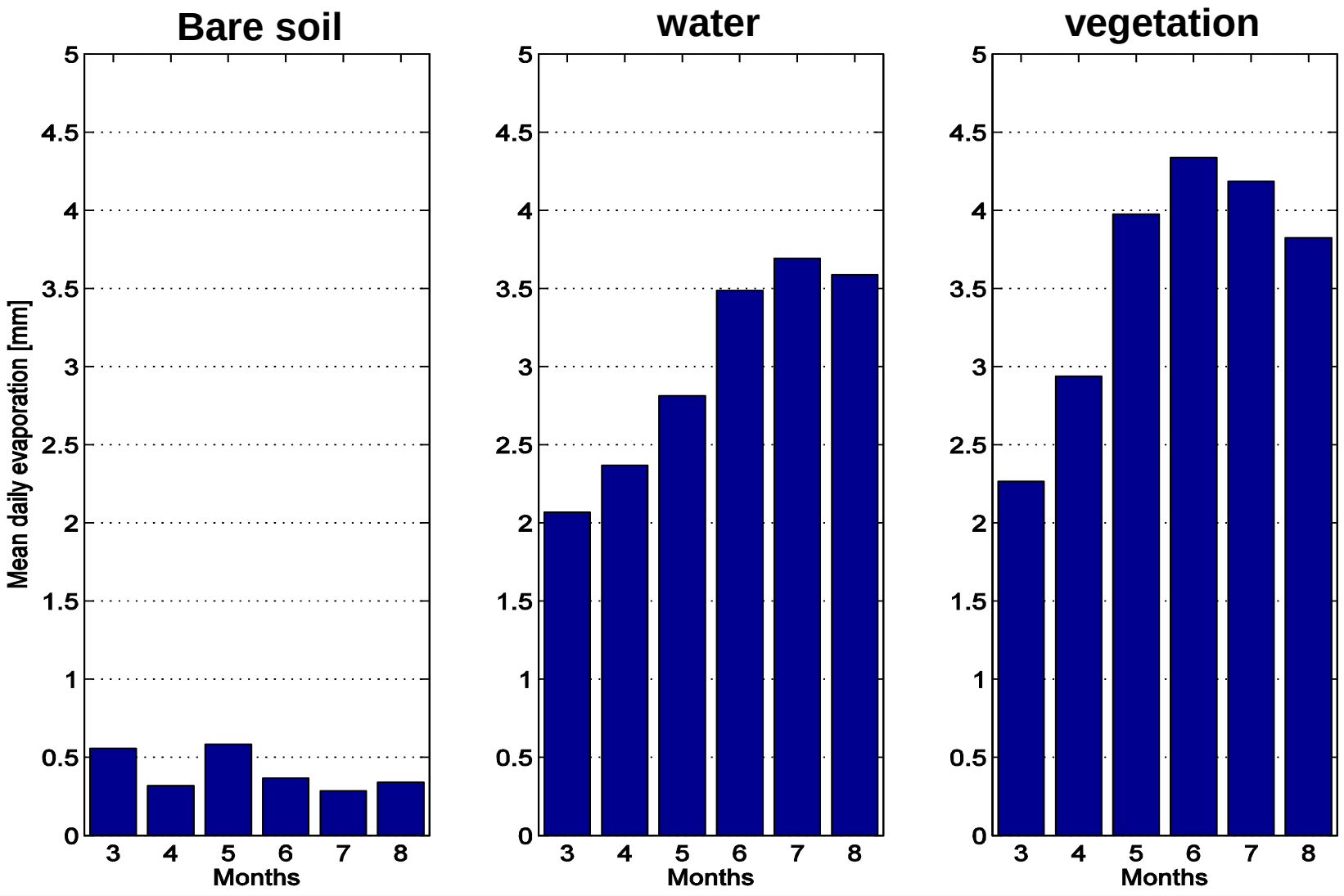
Evaporation - water



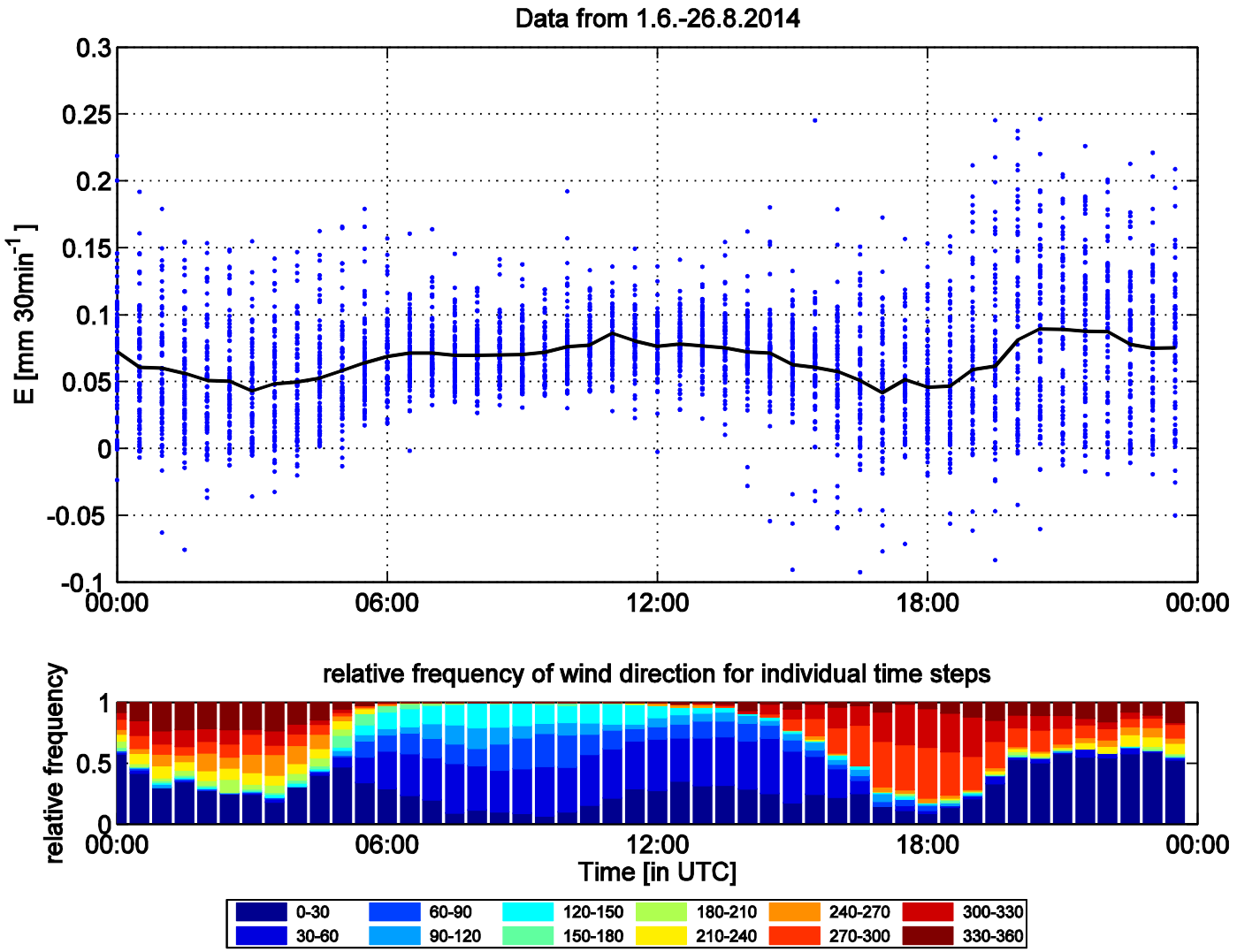
Evaporation - vegetation



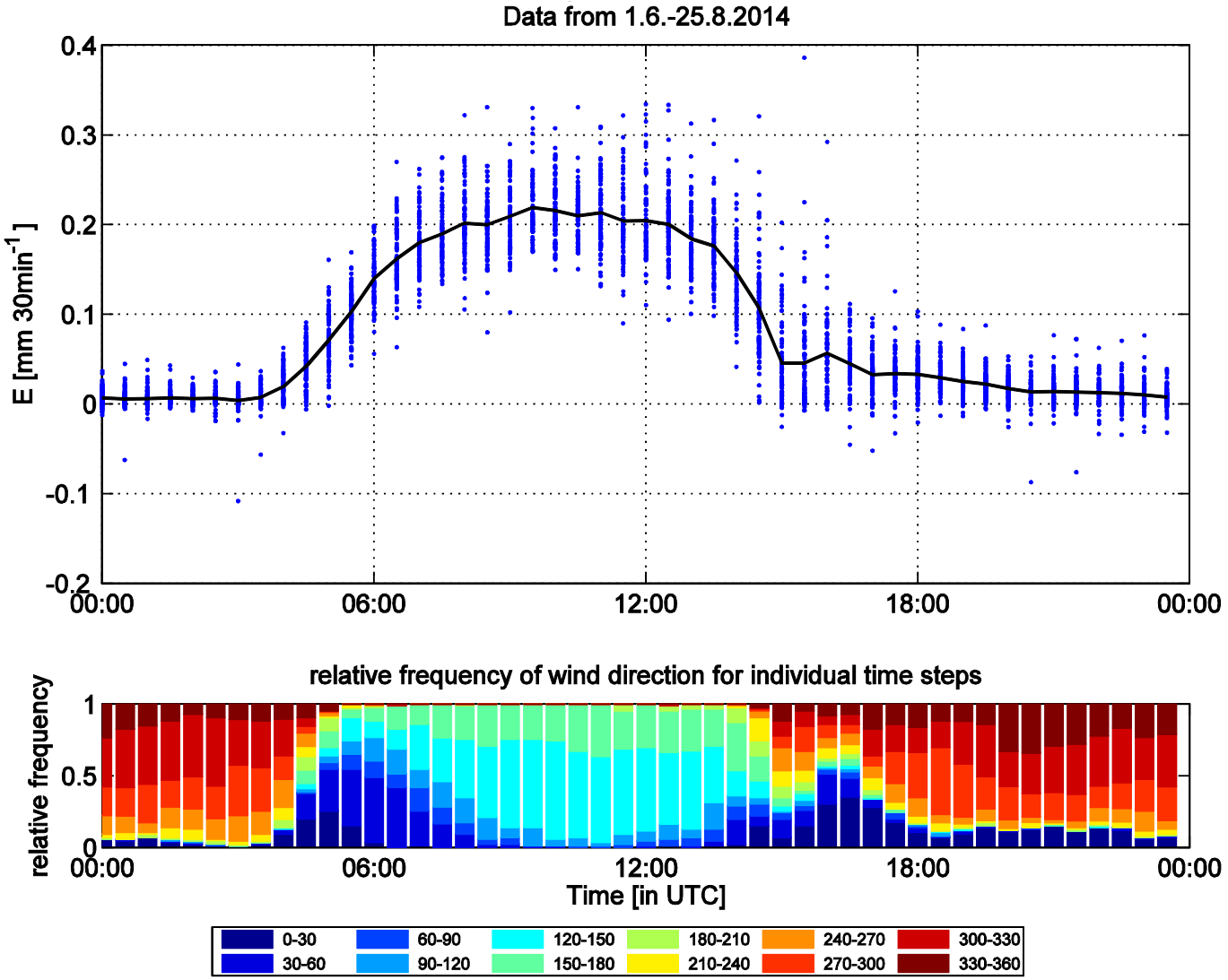
Mean daily evaporation



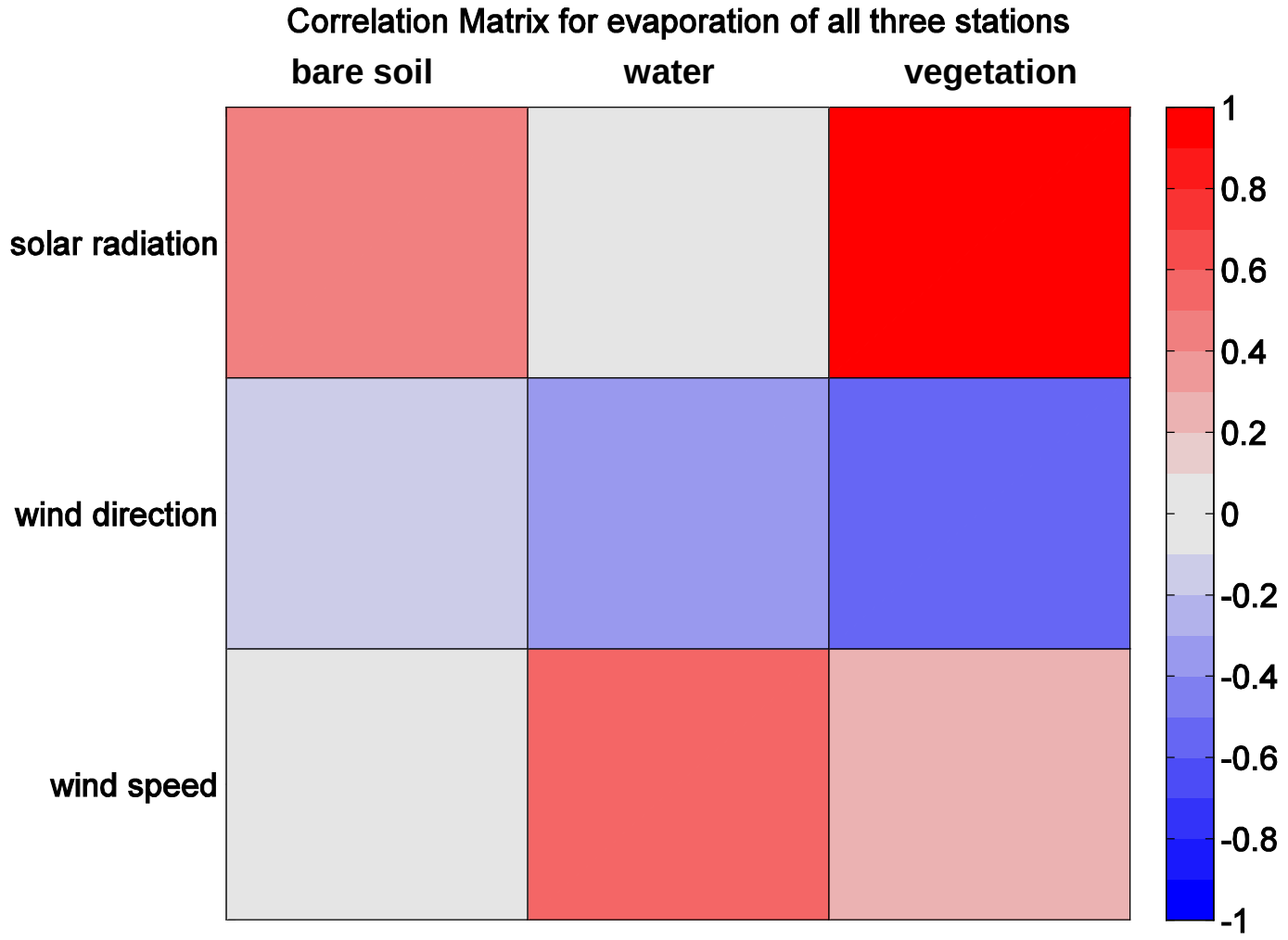
Daily variation - water



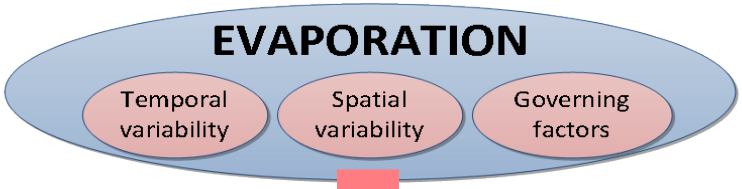
Diurnal variation - vegetation



Governing factors



Conclusions



MEASUREMENTS

CONCLUSIONS

First time high resolution mesasurements

3 characteristic sites

Evaporation 0.41 – 3.7 mm/day

Bare soil
- Constant monthly rate
- Estimated: 150 mm/year
- High impact of rain events
- Driving force: solar radiation
- Limiting factor: soil moisture

Water
- Increase in summer
- Estimated: 1095 mm/year
- Driving force wind speed

Vegetation
- Increase in summer
- Estimated: 1351 mm/year
- Effect of transpiration
- Driving force solar radiation