

**SUMMARY OF STSM SCIENTIFIC REPORT**  
**"Regional Assessment of Drought Risk in Slovenia and Switzerland under**  
**Current and Future Climatic Conditions"**  
**COST Action: 734**

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The main motivation of STSM was to promote drought risk research in Slovenia and Switzerland with a focus on the assessment of agricultural drought under consideration of information for multiple parameters (soil moisture, actual evapotranspiration, crop water balance). Equally important was the second goal part of the STSM, the training of the applicant on using a weather generator to develop climate change scenarios valid for the local scale. The STSM resulted in a common methodology for targeting climate change impact on crop water balance. The outcome of this STSM will be a contribution to COST action 734 and more generally to the drought modelling community. Results could also be used in the frame of Drought management center for south eastern Europe-DMCSEE. The work included the following elements

**1. Comparison of measured and simulated crop water deficit:**

- Simulated grass water deficits by the crop water balance model IRRFIB were compared with daily measurements (TDR soil moisture content) obtained for specific sites in Slovenia and Switzerland..
- Two different methods for estimating crop evapotranspiration were compared. The results indicated that the Priestley-Taylor equation can be used as an approximation of the standard Penman-Monteith equation, provided that the Priestley-Taylor coefficient is adjusted to account for the site specific conditions.

**2. Preparation of an ensemble of climate change scenarios for selected sites in Slovenia and Switzerland.** The LARS-WG stochastic weather generator was used to develop site specific scenarios for the time window 2040-2050. To assess their reliability, the scenarios were compared with those already available from the COST-734 project AgriClim.

**3. Evaluation of drought occurrence under future climatic conditions.** Water deficits during the growing season of crops were calculated with IRRFIB along with the climate scenarios. As a measure for drought severity the drought Index developed by Sušnik (2006) was used.

**4. Start with preparation of a paper** on the outcome of the STSM, to be presented to an international journal.

As an outcome of the STSM the following results were obtained. (1) an adjusted version of IRRFIB that can be used to quantify water deficit in grassland; (2) a set of climate scenarios for use in COST 734 , in particular impact assessments performed by WG 3. In addition, a set of R-procedures for the evaluation of drought risk has been written, that will also be made available to COST 734.