

# A M M A

**African Monsoon Multidisciplinary Analyses**  
**Afrikanske Monsun: Multidisiplinære Analyser**  
**Afrikaanse Moesson Multidisciplinaire Analyse**  
**Analisi Multidisciplinare per il Monzone Africano**  
**Afrikanischer Monsun: Multidisziplinäre Analysen**  
**Analisis Multidisciplinar de los Monzones Africanos**  
**Analyses Multidisciplinaires de la Mousson Africaine**

## WG2: Water Cycle

### Understanding the water cycle & its change due to natural & anthropogenic factors is critically important :

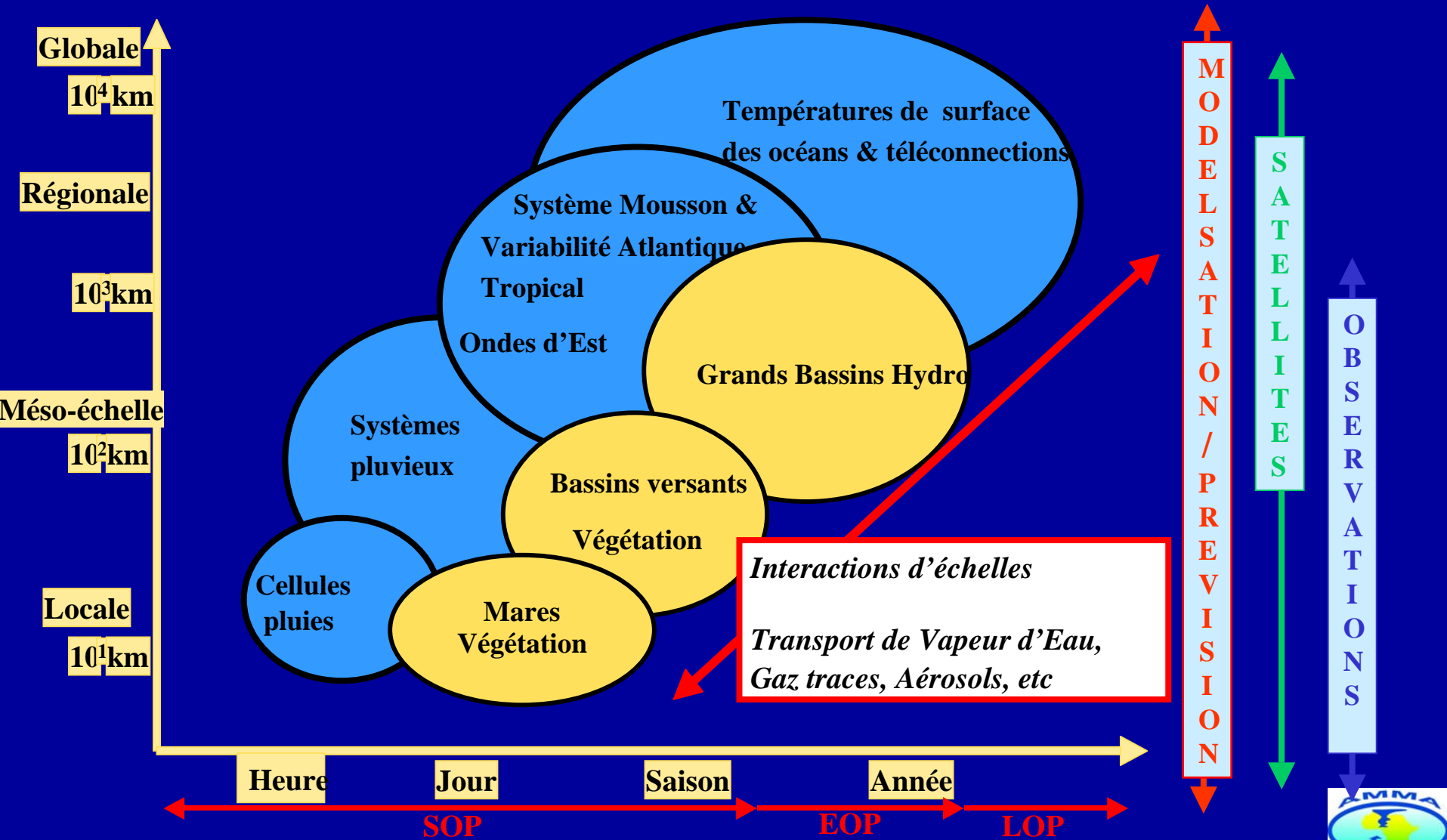
- Availability of water is one of the most limiting parameters for life, agriculture & economic development in the Sahel: need better climate predictions (Link with WG4)
- Central role in monsoon dynamics & its variability (Link with WG1)
- Important role in high-impact forecasts (Link with WG5)

### Understanding of the water cycle is difficult

- Lack of data concerning a very large number of processes at a great variety of spatial & temporal scales (Link with TTs)
- Coupling between these processes induces complex feedbacks, which can either amplify or reduce the impact of oceanic, atmospheric or continental perturbations on water availability (Link with WG3)



# WG2: Water Cycle



## WG2: Water Cycle

Overall approach based on 4 research activities

3 nested spatial domains with scales relevant to the processes occurring in the water cycle

*Regional ( $>10^6$  km<sup>2</sup>) water cycle:*

**Major objective of AMMA: To determine water budgets & their interannual variability on WA for few hundred kms and 10-day to month resolutions**

*Mesoscale water cycle ( $10^3$  -  $10^5$  km<sup>2</sup>)*

**Preferred scale for atmosphere and surface/hydrology integration**

*Local scale water cycle ( $1$  -  $10$  km<sup>2</sup>)*

**Preferred scale for intense hydrology observations (Super sites)**

*Up/Down Scaling*

**Methods of upscaling & downscaling used to transfer information between scales**

