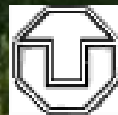
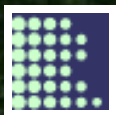


Changes and management of risks of extreme flood events in huge basins considering as example river Elbe (VERIS-Elbe)

Development of new approaches for risk evaluation
of extreme floods subject to potential climate
changes and land use variances

C. Schmidt, R. Schwarze, W. Dröge, G. H. Schmitz



TECHNISCHE
UNIVERSITÄT
DRESDEN



EUROPEAN COMMISSION
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Joint Research Centre



Objectives of cooperative project

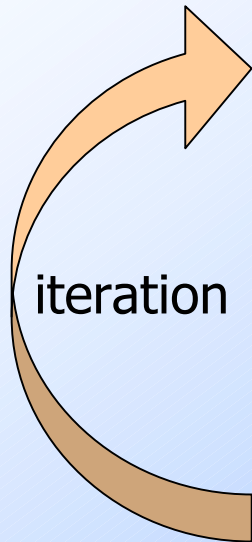
- Flood risk assessment of german part of river Elbe
- Derivation of potential of damage
- Risk management (provisions in flood protection)

Contribution of TUD/IHM

- assessment of probability of occurrence future extreme floods [HQ(T)], if:
 - climate changes and/or
 - socio-economic changes: - land use changes
 - economic development
 - provisions in flood protection

Tool

analysis ex post and ex ante



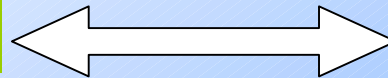
- determine simulation terms → climate szenario and/or
→ socio-economic trends
- compute simulation (→ [methodology](#))
- determination of extrem values HQ(T) resp. changed T
- assessment

Tasks

- several statistical variables

→ flood-peak, volume of flood, duration of inundation → hydraulic engineering

flood-attribute-statistics



multidimensional statistics

- considered trends

→ trends in recent/historical precipitation and/or discharge behaviour

→ trends concerning frequencies (→ multidimensional trends precipitation)

→ coherency: precipitation - discharge

- evaluation of rainfall-runoff-model errors with respect to statistical analysis

→ extrapolation properties of model ?

a) without trend

→ extension data base → inclusion of P - data
e.g. AGREGEE-model (LANG & OBERLIN, 1994)

→ precondition: ΔP proportional ΔQ for long T

b) simple trend (climate szenario)

→ trend correction → common methods

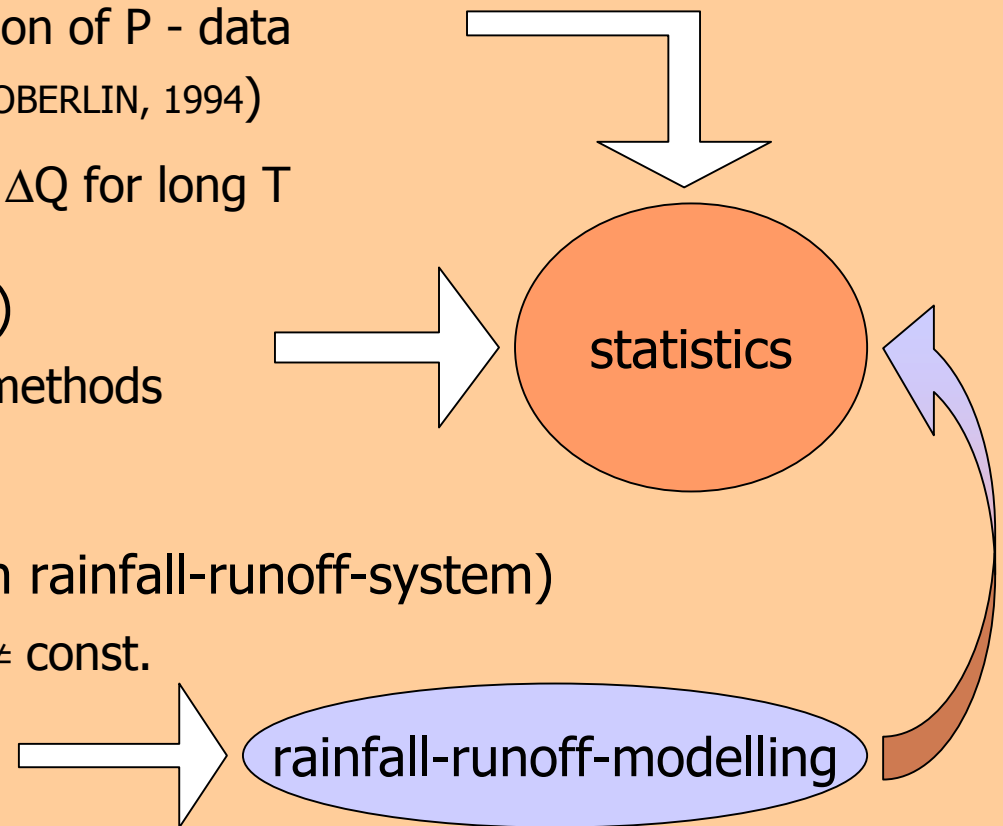
c) combined trend

(climate szenario + changes in rainfall-runoff-system)

→ rainfall-runoff-transformation \neq const.

→ land use changes

→ provisions in flood protection



back