Variable Runoff Generation Layer distributed hydrological model of hilly regions

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1.Background

1.1 Flash flood

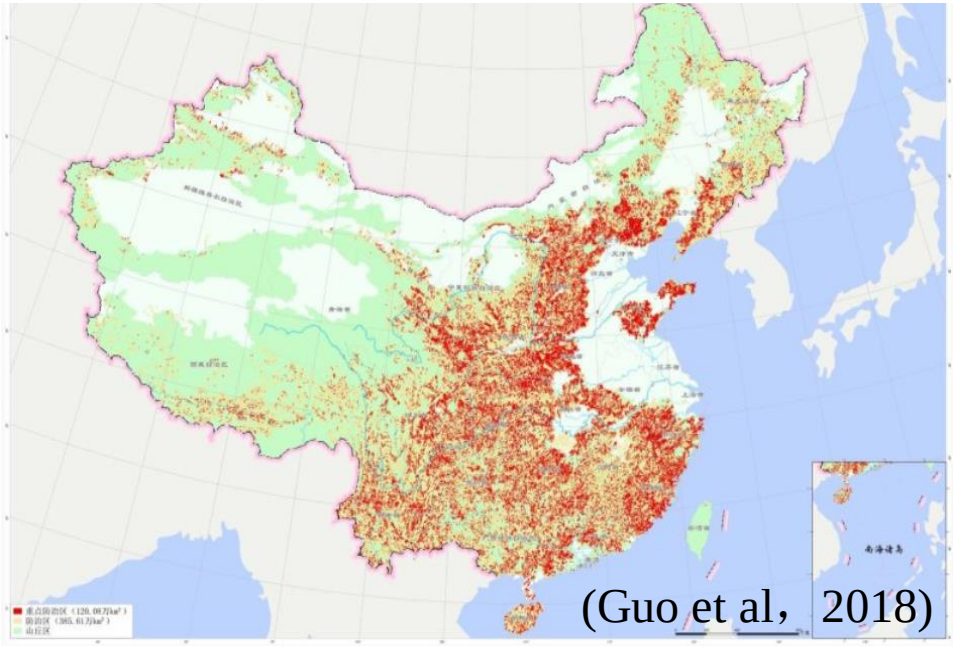
Classify by **Watershed Area**:

Flash flood ditch: area≤200km^2

Small and medium river:

200km^2＜area≤3000km^2 **Hilly Regions**

Big River: area＞3000km^2



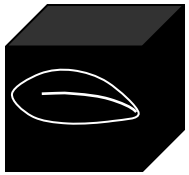
40min

1.Background

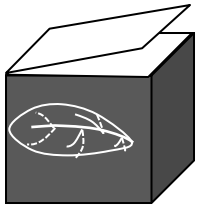
1.2 Hydrological model

The primary mean of flood forecasting

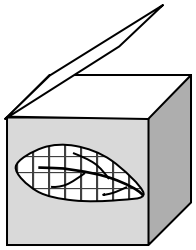
Important non-engineering measure of flash flood prevention and control



Empirical model



Lump model



Distributed model

Previous studies:

a. The data-oriented empirical/ lump model is difficult to satisfy flash flood forecasting.

b. Distributed hydrological model is the future trend as it can realize forecasting at any cross section.

Bottleneck:

a. The sophisticated model structure.

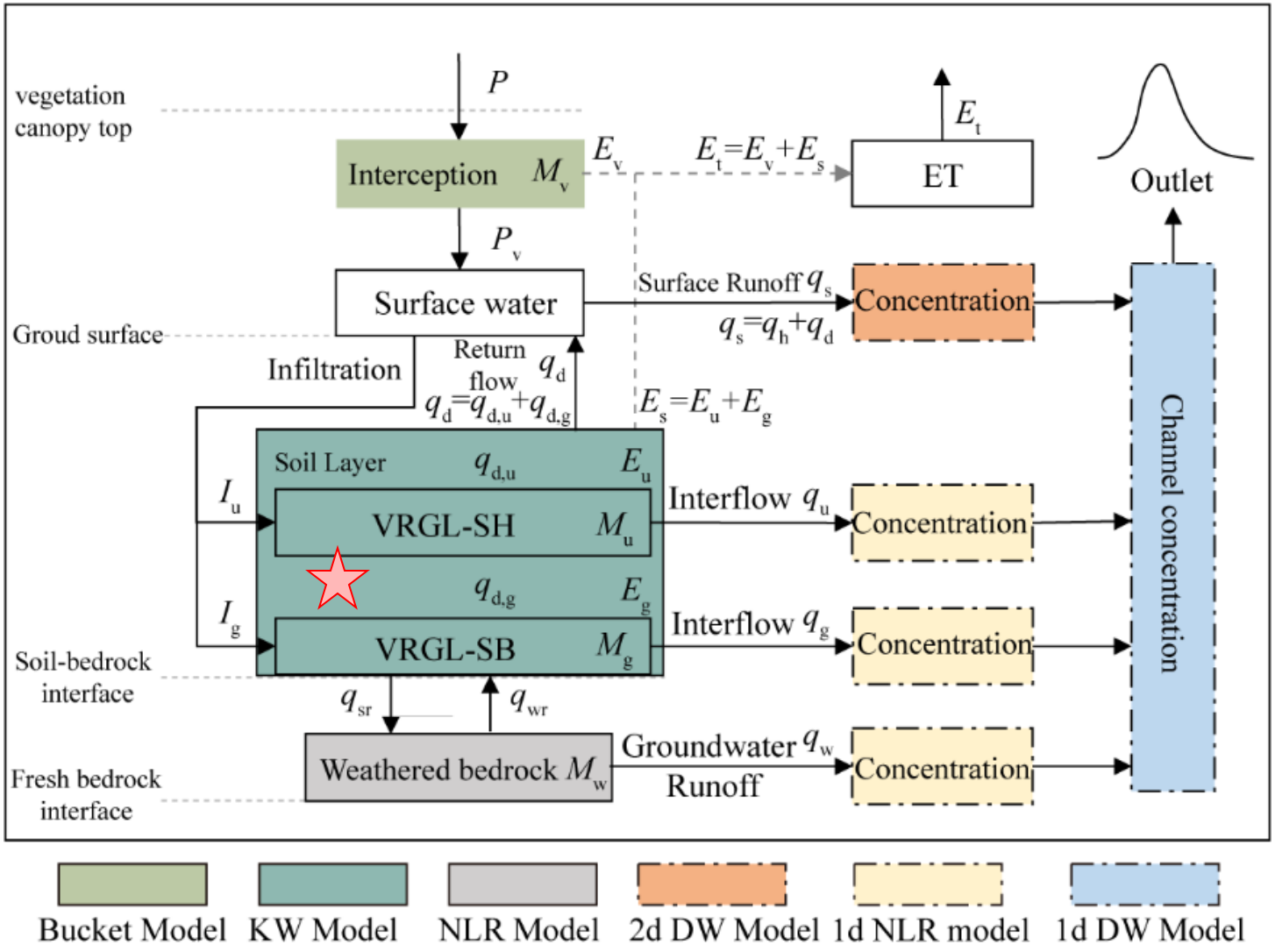
b. Rapid forecasting to tackle the flash flood.

A new model structure needed

★The runoff generation module

2. Research content

2 VRGL model



3.Summary

1. The variable runoff generation layer concept is proposed based on **the new understanding of hillslope hydrological experiments** to address the problem of flash flood forecasting in hilly regions.
2. The variable runoff generation layer concept has expanded the depiction of interflow from soil horizon to **soil-bedrock interface** and provided **a unified description** of the infiltration excess and the saturation excess runoff.
3. We establish **the variable runoff generation layer distributed hydrological model (VRGL)** based on the concept, the simulation result of the Tunxi watershed indicated that the accuracy of the VRGL model is sufficiently high for flood forecasting in hilly regions.

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Thanks You !