The Abdus Salam
International Centre
for Theoretical Physics

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College on Soil Physics - 30th Anniversary (1983-2013)

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Rainfall characteristics

GABRIELS Donald Maurice
University of Ghent Laboratory of Soil Physics
Fac. Agric.& Appl. Biol.Sciences
Dept. of Soil Management, Coupure Links 653
B-9000 Ghent
BELGIUM

The Abdus Salam International Centre for Theoretical Physics

Rainfall characteristics

Donald Gabriels

Department of Soil Management
UNESCO Chair of Eremology
Ghent University, Belgium

RAINFALL = PRECIPITATION

What can we measure?

Why?

How?

RAIN INTENSITY???

mm h^{-1}

Question?

20 mm/hr = 10 mm/30’????

Amount

mm

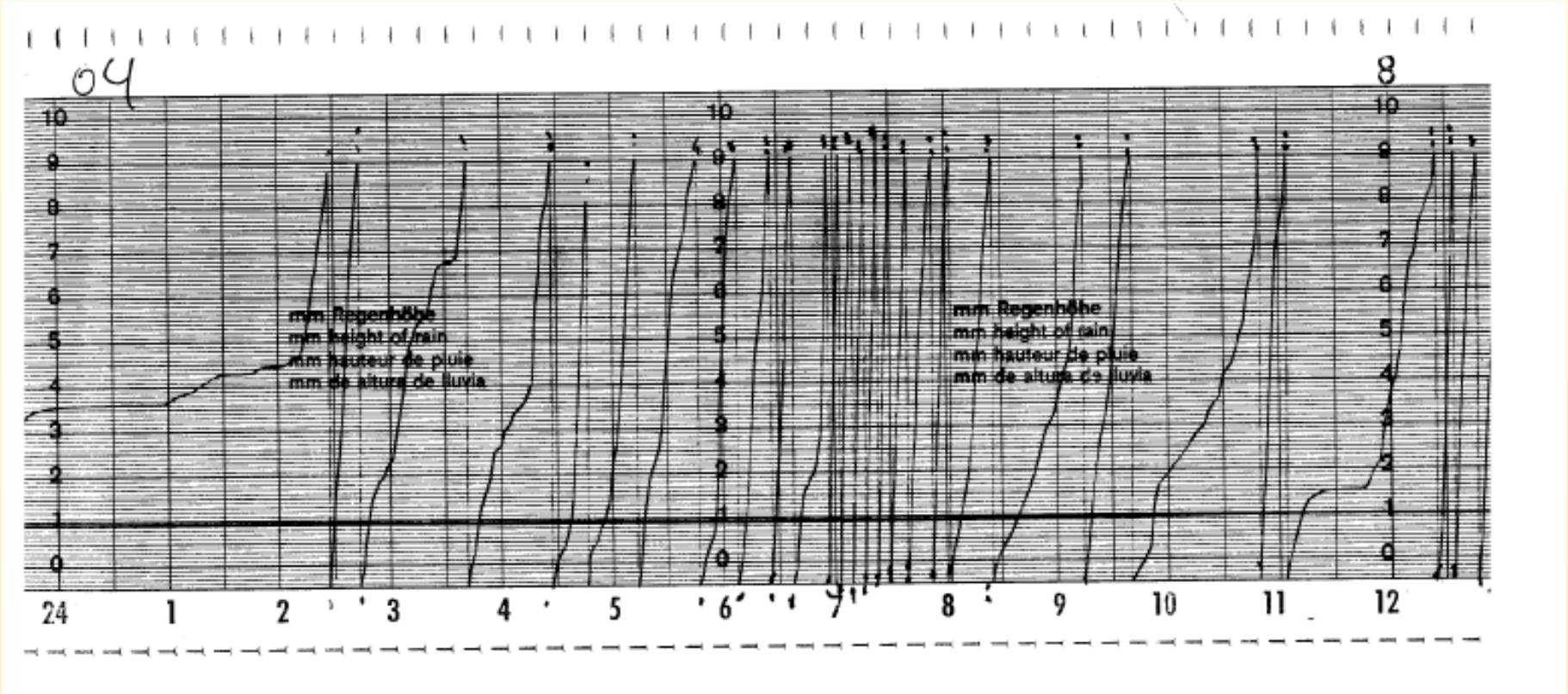
pluviometer

DURATION

- real
- measured

→ pluviograph

→ tipping bucket


04
8
mm Regenhöhe
mm height of rain
mm hauteur de pluie
mm de altura de lluvia
mm Regenhöhe
mm height of rain
mm hauteur de pluie
mm de altura de lluvia
24
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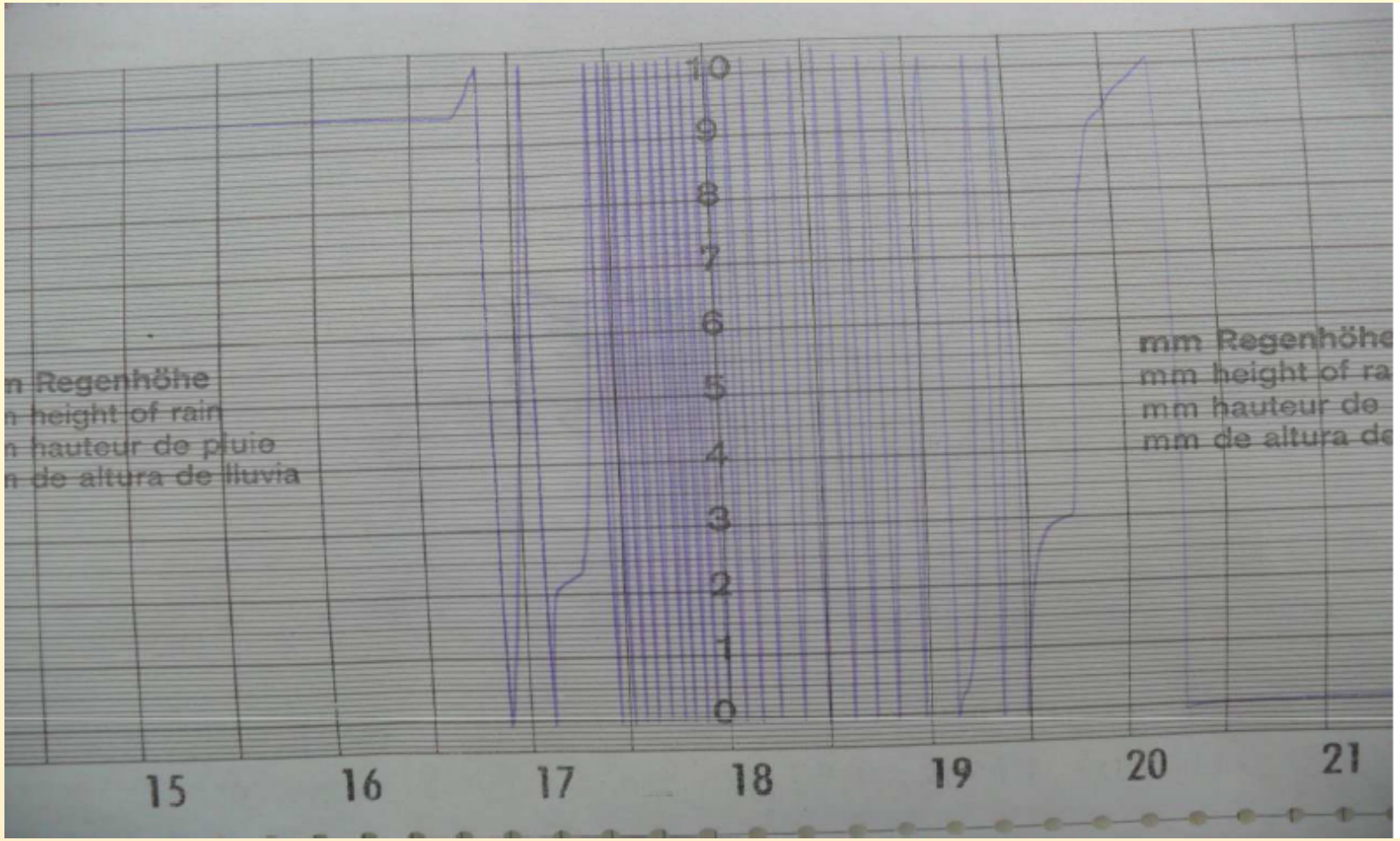
11
12


10
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n Regenhöhe
n height of rain
n hauteur de pluie
n de altura de lluvia
mm Regenhöhe
mm height of ra
mm hauteur de
mm de altura de

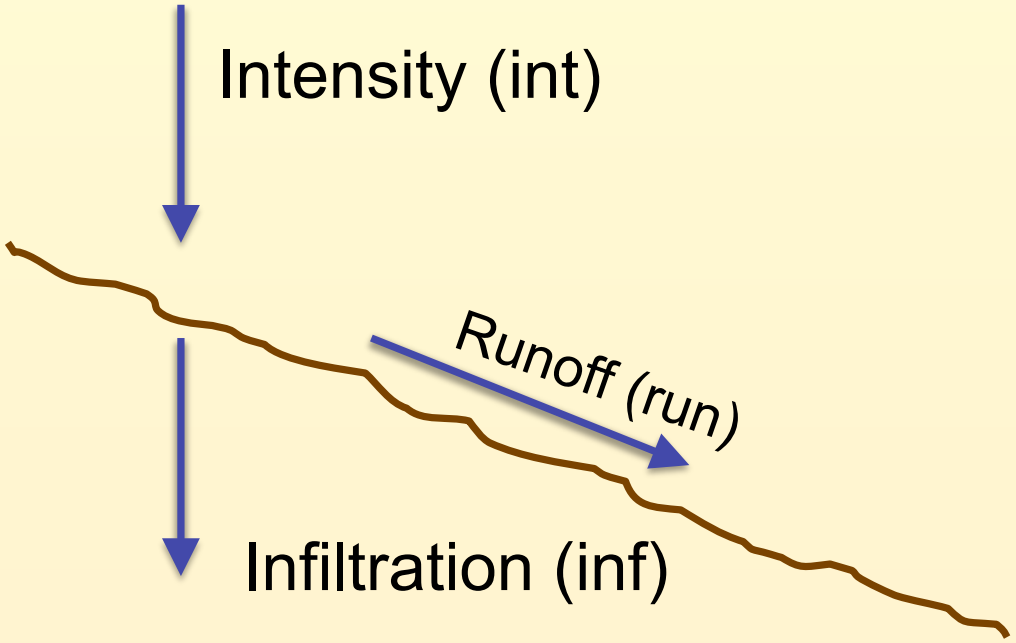
typing bucket

P: annual precipitation mm year^{-1}

$\rightarrow$ ETo $\rightarrow$ mm year^{-1}

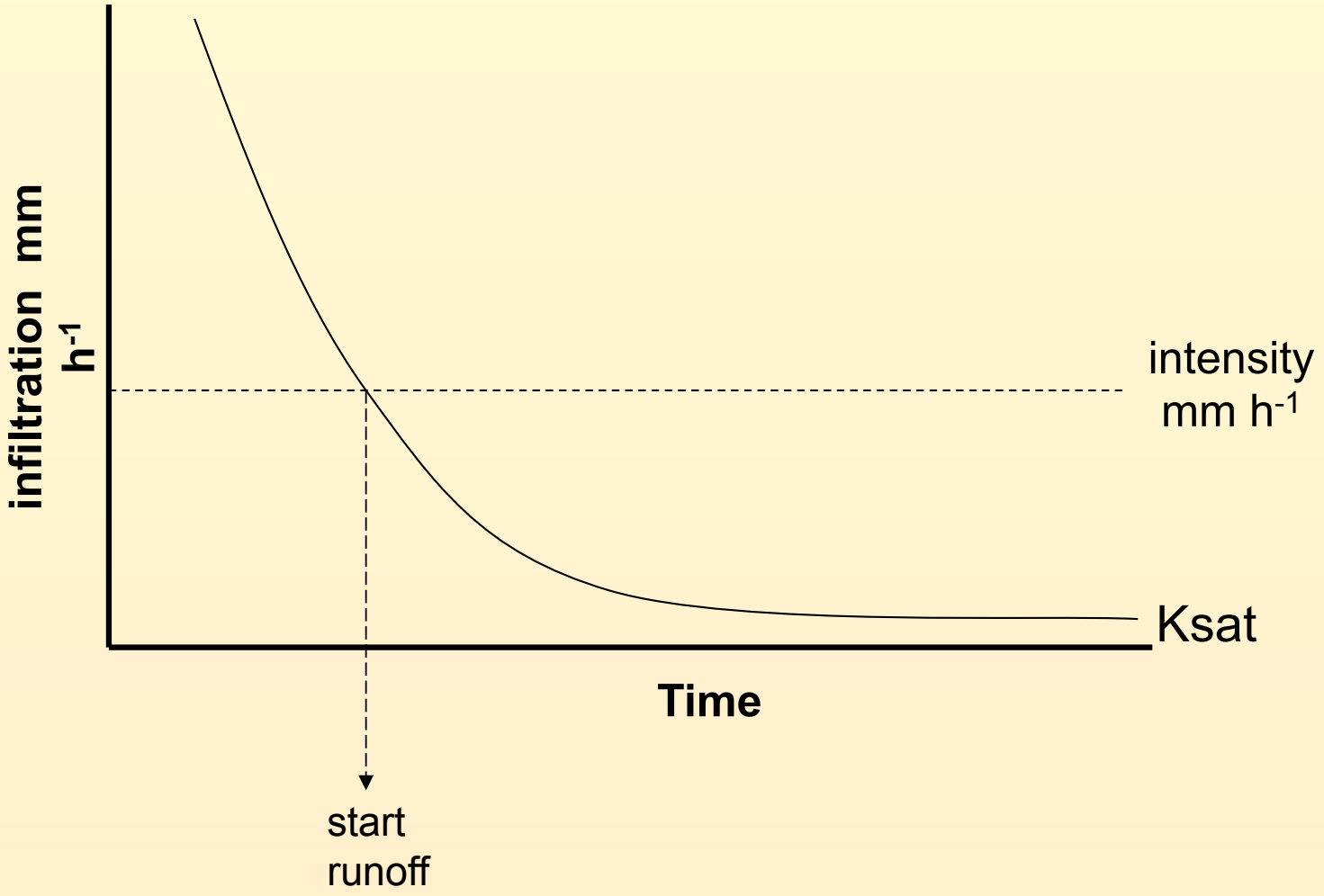
$\rightarrow$ $P/_{ETo}$ $\rightarrow$ Aridity Index

Why intensity mm h^{-1} ?



run = int - inf

Infiltration



Why intensity?

rain aggressivity → erosivity

ENERGY !

$$KE = \frac{mV^2}{2}$$

m = mass raindrop

(drop size distribution)

↓

function of intensity

If no intensities available?

- Daily rainfall amount = intensity!
- Monthly rainfall amount = intensity!

- MFI (Modified Fournier Index): rain aggressivity

- $MFI = \Sigma\ p^2/P$
- p: monthly precipitation
- P: annual precipitation