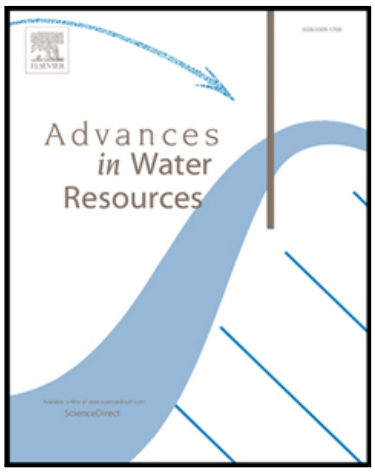

Sampling design optimisation for rainfall prediction using a non-stationary geostatistical model

Alexandre M.J-C. Wadoux, Dick J. Brus, Miguel A. Rico-Ramirez, Gerard B.M. Heuvelink

PII: S0309-1708(17)30083-0
DOI: 10.1016/j.advwatres.2017.06.005
Reference: ADWR 2865

To appear in: *Advances in Water Resources*

Received date: 25 January 2017
Revised date: 7 June 2017
Accepted date: 11 June 2017

Please cite this article as: Alexandre M.J-C. Wadoux, Dick J. Brus, Miguel A. Rico-Ramirez, Gerard B.M. Heuvelink, Sampling design optimisation for rainfall prediction using a non-stationary geostatistical model, *Advances in Water Resources* (2017), doi: 10.1016/j.advwatres.2017.06.005

Highlights

- Geostatistical prediction of daily rainfall benefits from a model that includes non-stationarity in the mean and variance
- Rain-gauge networks can be optimised spatially for daily rainfall interpolation
- Sampling design optimisation of rain-gauge networks leads to a modest but significant accuracy improvement
- In a case study the number of required rain-gauges could be reduced by 10
- The optimal rain-gauge network has a fairly uniform spatial distribution with increased density in mountainous areas and far from radar stations