

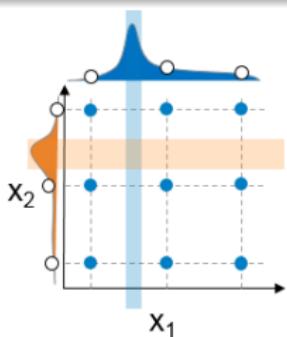
# Latin hyper-cube sampling

Markus Möller

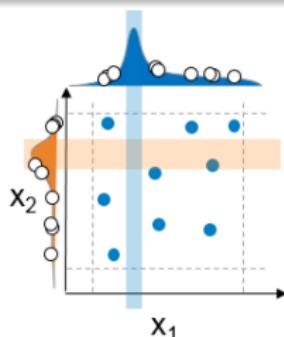
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# Prinzip

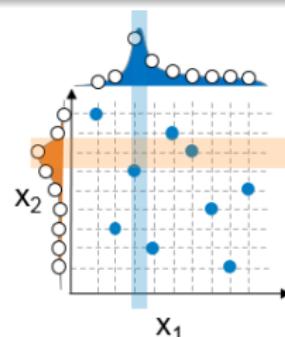
- stratifiziertes Zufallsstichprobenverfahren für multivariate Verteilungen
- folgt der Idee eines lateinischen Quadrats, bei dem nur eine Stichprobe in jeder Zeile und jeder Spalte gezogen wird
- die Stratifizierung basiert auf Hyperparametern (hier: Parameter kumulativer Verteilungsfunktionen)



Standard Grid Search



Random Search

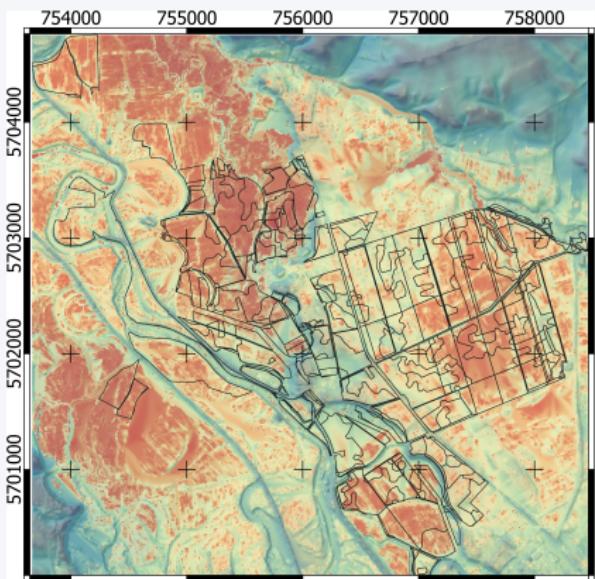


Random Latin Hypercube

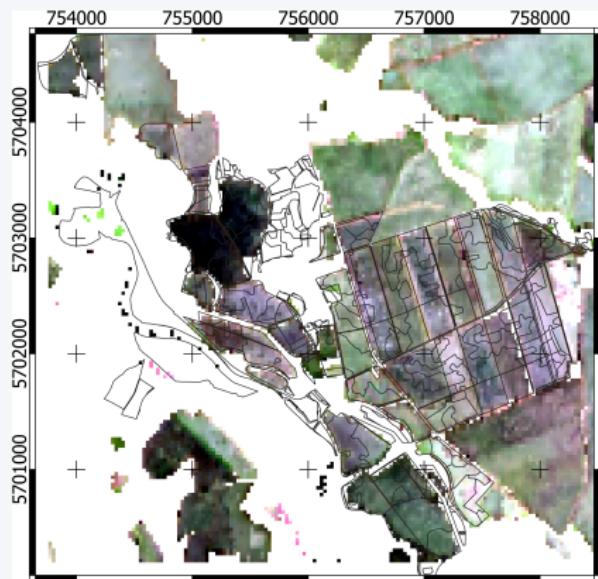
Minasny, B., McBratney, A.B., 2006. A conditioned Latin hypercube method for sampling in the presence of ancillary information. Computers Geosciences 32, 1378–1388. <https://doi.org/10.1016/j.cageo.2005.12.009>

# Parametrisierung

## Reliefattribute



## SCMaP



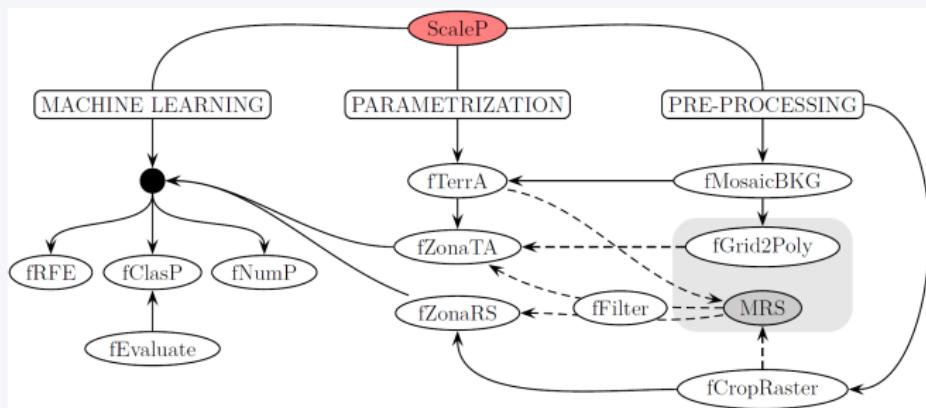
# Parametrisierung

## Parameter

BF	MBI	NH	SLP	SM3	SM4	SM5	TCI	TWI
AB: u	0,42210000753...	0,47859999537...	1,51230001449...	1344,15600585...	2379,56542968...	2963,25000000...	0,64609998464...	7,44980001449...
AB: u	-0,3406333327...	0,43009999394...	1,66446665922...	582,000000000...	1003,00000000...	1014,00000000...	0,67280000448...	8,45930004119...
AB: u	-0,0081500113...	0,39140000939...	0,60604999959...	1388,61108398...	2461,66918945...	2872,49414062...	0,68060001730...	8,33645009994...
AB: u	-0,3517999947...	0,52950000762...	1,89699995517...	1344,15600585...	2379,56542968...	2963,25000000...	0,64620000123...	7,32299995422...
AB: u	0,15420000255...	0,41789999604...	0,96289998292...	1398,67456054...	2506,44775390...	3032,31054687...	0,66430002450...	7,87270021438...
AB: u	-0,5200999975...	0,47479999065...	1,83150005340...	1453,11303710...	2373,71606445...	2886,33251953...	0,65390002727...	7,50059986114...
AB: u	0,50169998407...	0,47279998660...	1,99100005626...	1344,15600585...	2379,56542968...	2963,25000000...	0,64529997110...	7,44500017166...
AB: u	0,85439997911...	0,50410002470...	3,48140001296...	1465,87512207...	2530,89916992...	3153,05664062...	0,63919997215...	7,29549980163...
AB: u	-0,0696333398...	0,63869998852...	0,51793333888...	1348,53564453...	2355,37817382...	2979,91040039...	0,66216667493...	8,32136662801...
AB: u	0,10910001397...	0,59225001931...	1,35560002923...	1211,00000000...	2273,00000000...	2831,00000000...	0,65064999461...	7,78670001029...
AB: u	-0,0306000088...	0,45256667335...	5,77253341674...	1211,00000000...	2273,00000000...	2831,00000000...	0,64826667308...	7,28139988581...
AB: u	-0,2621333375...	0,64399999380...	0,42209999759...	1457,93652343...	2533,13183593...	3207,81713867...	0,66533333063...	8,07950003941...
AB: u	-0,4010333220...	0,64869999885...	1,28346663713...	1521,78625488...	2600,62817382...	3232,62451171...	0,67083334922...	8,02423334121...
AB: u	-9,9999997473...	0,12430000305...	0,01080000028...	1344,71728515...	2291,05883789...	2498,67993164...	0,69730001688...	8,96119976043...
AB: u	0	0,11860000342...	0,01080000028...	1344,71728515...	2291,05883789...	2498,67993164...	0,69650000333...	8,91699981689...
AB: u	0,08291250281...	0,29116250574...	0,18738749623...	1588,19055175...	2671,53149414...	2989,77709960...	0,71788749098...	10,5921872854...
AB: u	0,05498888923...	0,29904444018...	0,13079999966...	1660,86547851...	2637,64965820...	3039,60888671...	0,71995555692...	10,7125445471...
AB: u	-0,0372000022...	0,31785555680...	0,16277777569...	1473,09582519...	2384,01416015...	2664,06420898...	0,71851110458...	10,5328334172...
AB: u	-0,0075000011...	0,34505555033...	0,18168888654...	1444,14587402...	2308,76953125...	2588,72900390...	0,7184222743...	10,4219332800...

# R-Skripte

## ScaleP



<https://github.com/FLFgit/ScaleP/wiki>

Möller, M., Zepp, S., Wiesmeier, M., Gerighausen, H., Heiden, U., 2022. Scale-specific prediction of topsoil organic carbon contents using Terrain Attributes and SCMaP Soil Reflectance Composites. Preprints 2022, 2022030253.  
<https://doi.org/10.20944/preprints202203.0253.v1>

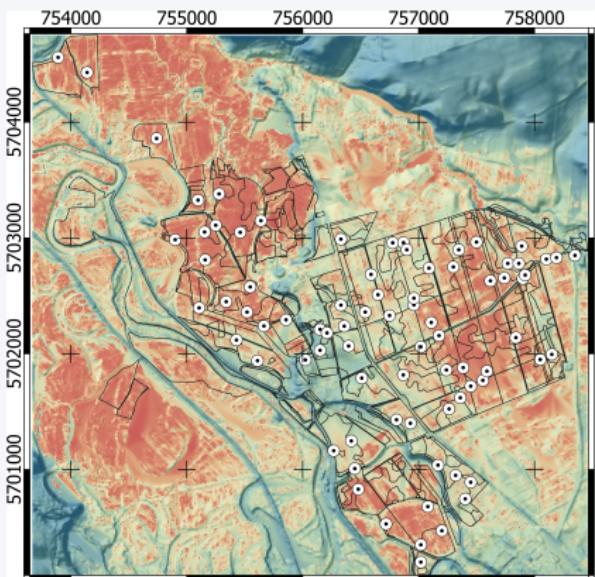
## SampleR

SampleR(POT.FILE, PON.FILE, IN.DIR, IN.EPSG, OUT.DIR, SN)

<https://github.com/FLFgit/SampleR>

# Stichproben

Reliefattribute



SCMaP

