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# set the connectivity for Zinn&Harvey
connectivity = ["mean", "low", "high"]
# rescaling correlation length for zinn&harvey
length_scales = [1, 1.67, 1.67]
seed = gs.random.MasterRNG(0)
# iterate over connectivity types
for conn, len_scale in zip(connectivity, length_scales):
    # create the transmissivity field
    cov_model = gs.Gaussian(
        dim=2, var=2, len_scale=len_scale, anis=0.5)
    srf = gs.SRF(
        model=cov_model, mean=np.log(1e-3), seed=seed())
    # 2d spatial random field in x-z direction
    srf.mesh(model.msh, direction="xz")
    # apply Zinn&Harvey transformation
    if conn != "mean":
        gs.transform.zinnharvey(srf, conn=conn)
    # transform to log-normal
    gs.transform.normal_to_lognormal(srf)
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