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import numpy as np
from scipy import stats
import gstools as gs

cond_pos, cond_val = np.loadtxt("regress_krige.txt")
# fit linear regression model
regress = stats.linregress(cond_pos, cond_val)
trend = lambda x: regress.intercept + regress.slope * x
# de-trended simple (unbiased) kriging
grid = np.linspace(0, 50, 1000)
reg_krige = gs.Krige(
    gs.Matern(dim=1), cond_pos, cond_val,
    trend=trend, unbiased=False, fit_variogram=True)
fld, err = reg_krige(grid)
# plotting kriging standard deviation
fill = (grid, fld - np.sqrt(err), fld + np.sqrt(err))
ax = reg_krige.plot()
ax.scatter(cond_pos, cond_val, label="conditions")
ax.fill_between(*fill, alpha=.3, label="std deviation")
ax.plot(grid, trend(grid), color="k", label="trend")

```

