

Quick analysis

Import libraries

Import installed libraries.

```
import sys
from pathlib import Path
import pandas as pd
```

Set root directory.

```
ROOT = Path(sys.path[0]).parent
sys.path.append(str(ROOT.joinpath('code')))
```

Import project modules and functions.

```
from simulategrid import capteurs_numeric
from pylib import simulate_point
```

Import data

Read table of sensor locations.

```
sensors = pd.read_csv(ROOT.joinpath('data', 'capteur.csv'), sep='\t')
xycoord = capteurs_numeric(sensors)
```

Validation

Launching from (x = 2.5 km, y = 3.1 km, r = 10 m), verification from sieprog.ch says:

S2 5.35 détections/paquet (± 2.00)

S3 2.10 détections/paquet (± 1.00)

Les autres capteurs ne détectent aucun paquet.

For 100 packets, we expect $535(\pm)200$ for S2 and $210(\pm)100$ for S3. The following output confirms that our code works properly.

```
out = simulate_point(xycoord, 2500, 3100, 10, 100)
for i, paq in enumerate(out['paquets']):
    print(f'S{i:d} {paq:d} paquets\n')
print(f"Plausibilité: {out['plausibilite']:0.5f}\n")
```

S0 0 paquets

S1 0 paquets

S2 468 paquets

S3 205 paquets

S4 0 paquets

S5 0 paquets

Plausibilité: 0.03456