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Master en Hydrogéologie et Géothermie

Template Projet Master

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Abstract

This study presents a novel workflow that was developed to model the internal heterogeneity of a complex 3D aquifer using the Multiple-point Statistics (MPS) algorithm DeeSse. The modelled aquifer is the Continental Pliocene layer (PC) that is part of the Roussillon Aquifer in the Perpignan's region in Southern France.

Remerciements

Je tiens tout d'abord à remercier ...

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1 Introduction

The aim of this project was to model the geological facies of the Continental Pliocene (PC) aquifer of the Roussillon Plain. The aquifer is situated in the South-West of France in the Perpignan region.

2 State of the art

In this section, I review some general information regarding firstly the geology and hydrogeology of the Roussillon Plain and secondly on the Multiple-point Statistics approach and the DeeSse algorithm.

2.1 Description of the Roussillon Plain

2.1.1 Geology of the Plain

Located on the South-West part of France, between the Oriental Pyrenees Mountains and the Mediterranean Sea, the Roussillon Aquifer is a multi-layers aquifer covering a $900km^2$ area. Figure : 1



Figure 1 – Une photo d'un arbre.

3 Materials and Methods

I present in this section the different elements created for the MPS simulation and the basic concepts of the post-simulation tests realized in this project. [Valentin 2021]

4 Results and Discussions

After presenting the different variables created for the MPS simulation, we now present the result of the multiple-variables model performed with the DeeSse algorithm.

5 Conclusion

The aim of this project was to model the 3D geological heterogeneity of the Continental Pliocene aquifer of the Roussillon Plain.

A Appendix

A.1 SG 3D Creation

```
# -*- coding: utf-8 -*-  
import sgems
```

```
#####  
###Juin 2018 Valentin  
#####
```

References

Valentin, D. (2021). Un template de rapport. *Université de Neuchâtel*.