Le géologue, chef d'orchestre du projet minier

Jean-Marc MONTEL
Ecole Nationale Supérieure de Géologie

A Mine project

> **Exploration (find the ore deposit)**
> **Estimation (technical and financial feasability)**
> **Exploitation (digging the mine)**
> **Beneficiation (separating ore from tailings)**
> **Remediation (restoring the mine)**
> **Survey (long term)**

In a world with human activities !

**Common to all steps : ore and tailings**

New tools

➤ **More and more data, usually shown as maps or 3D models**

➤ **No more problems with equations, no needs for simplification**

➤ **New focus on**
  – **Quality of data (sampling)**
  – **Assessment of results (statistics)**
  – **Data analysis, what is significant, what is new, what is uncommon**
  – **Coherence, reconciliation, optimisation**

➤ **Data collection and storage is a new job**

➤ **Norms, procedures, safety, etc…**

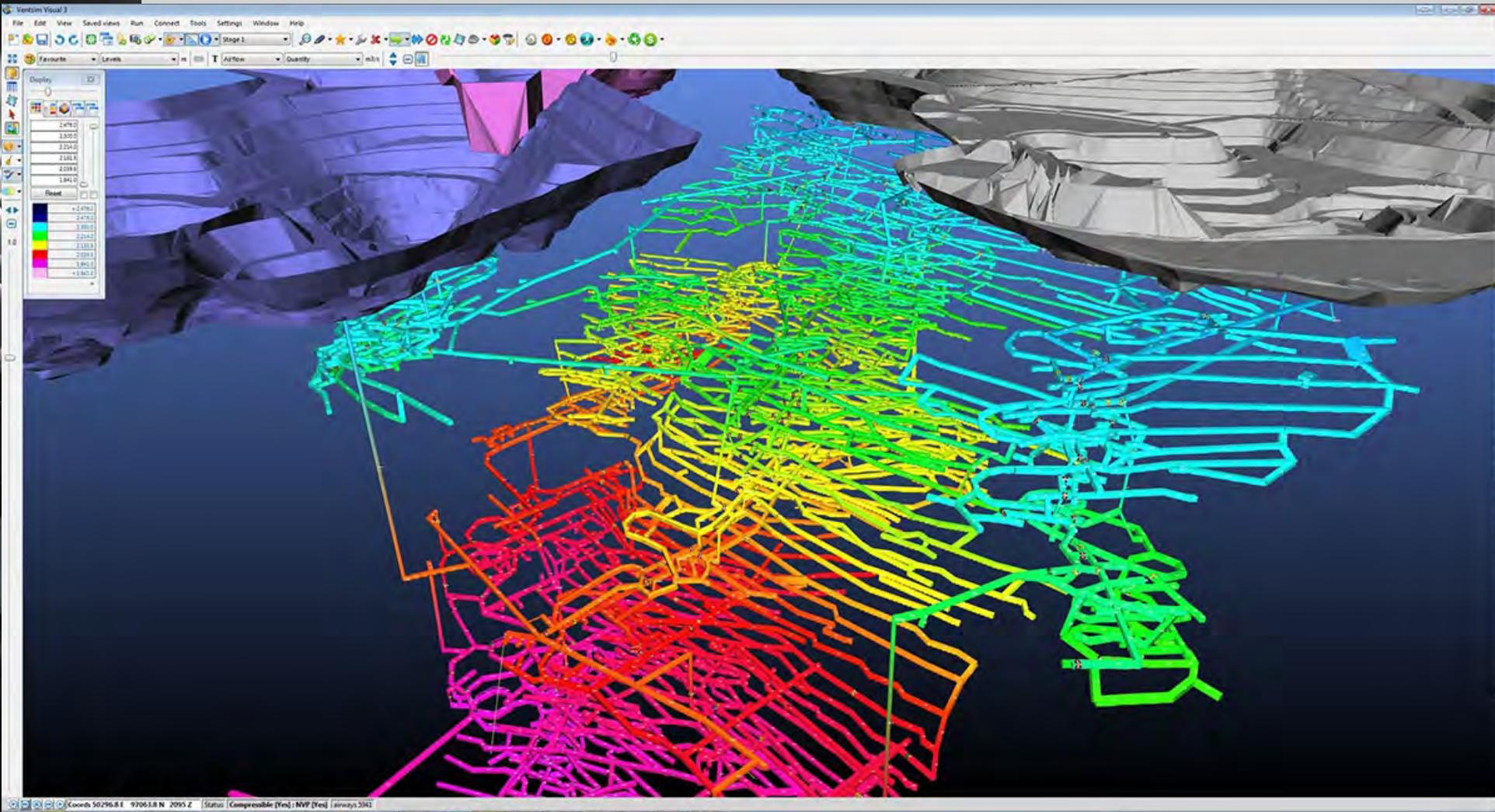# Lidar + mine
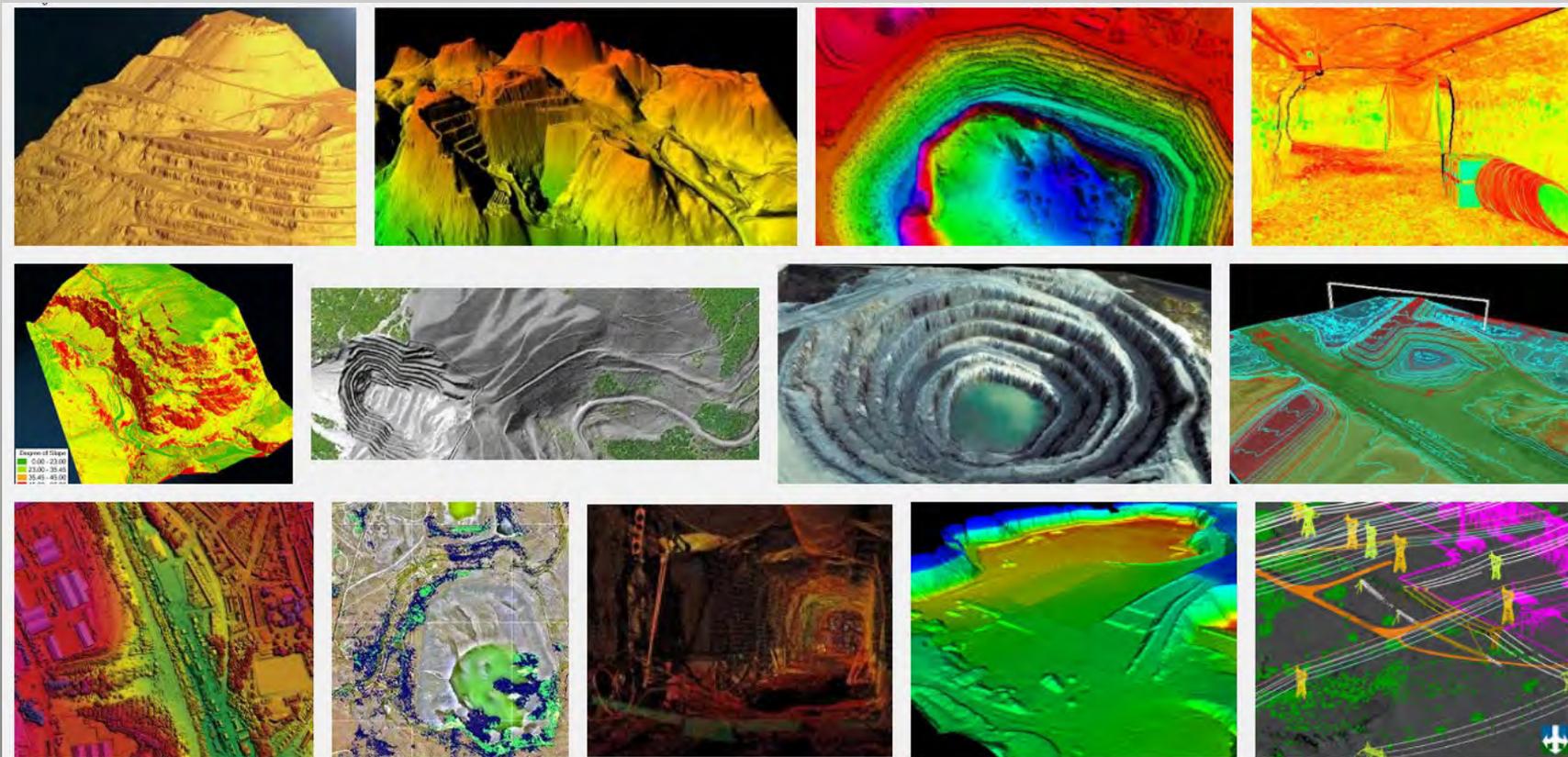
Geostatistics + sofware
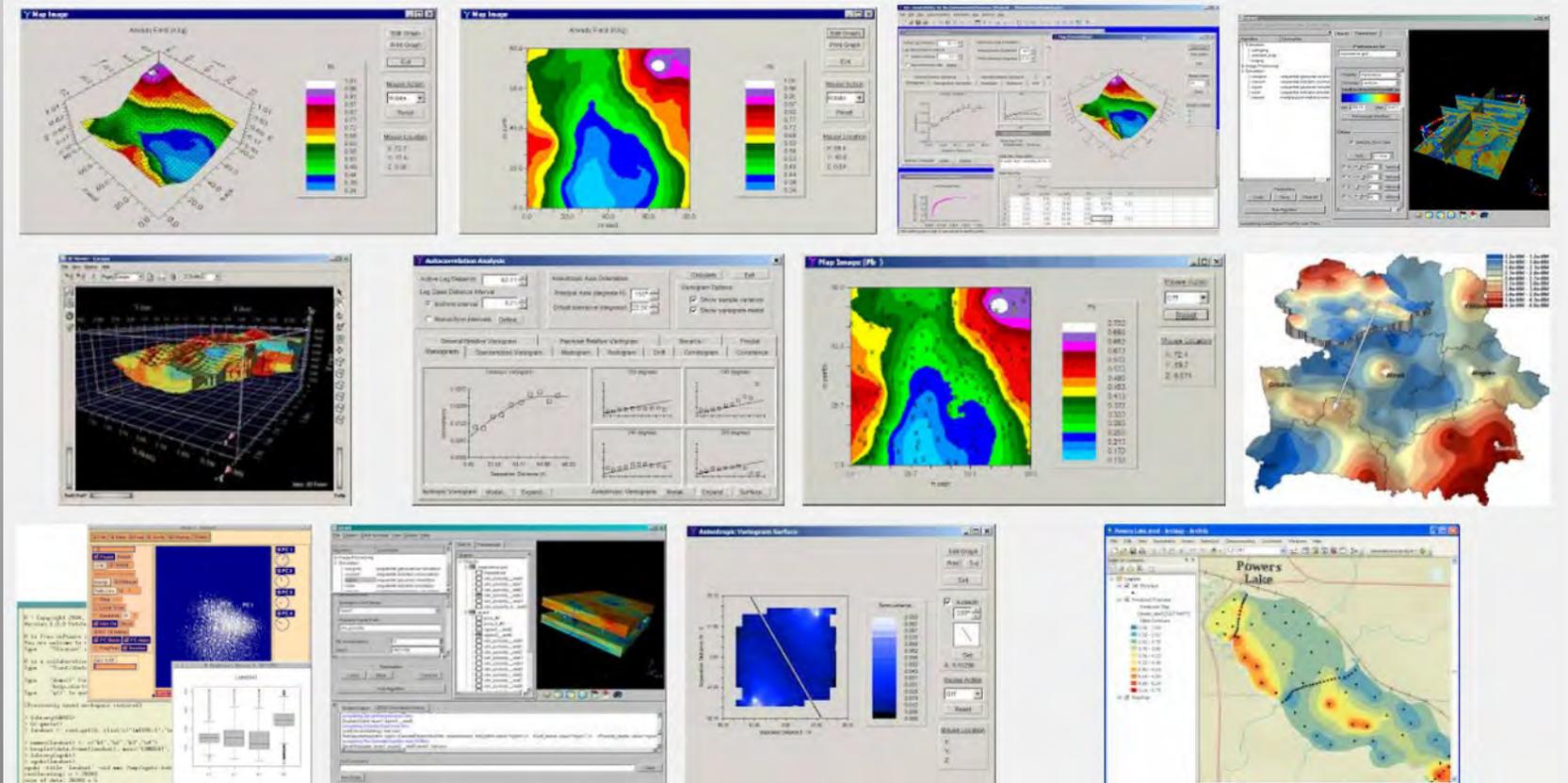
What is changing in education

➤**Concepts**
- **Equations are less visible**

➤**Techniques**
- **Major changes ! Computers !**
- **Field instruments**
- **A new skill : learning fast a complex software**

➤**Knowledge**
- **Available everywere (smartphone, USB)**
- **Normes**

How geologist are thinking

➢ **The studied object is uknown (no plan, nobody has built it)**

➢ **You have rare, discontinuous data**

➢ **Time and space scales cover several orders of magnitude**

➢ **You must integrate various kind of data (maps, ages, isotopes, minerals)**

➢ **All objects have a history**

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Preparing graduates for global mining project management

➢ **Human aspects taken in account at the very beginning (law, economy, sociology, communication, etc..)**

➢ **What is important is the project, not the mine**

➢ **Technical aspects (as imagined by engineers) can be minor point**

MINE MUST BE ADAPTED TO ITS HUMAN AND NATURAL ENVIRONMENT its not only obey to the laws and state of the art