

COMBINE THE
POWER OF ISATIS.NEO
WITH THE PYTHON
ENVIRONMENT TO BUILD
AND AUTOMATE YOUR
GEOSTATISTICAL
MODELING WORKFLOWS.



Isatis.py is the Geovariances Python geostatistical library that empowers geoscientists in mining, energy, and natural resource sectors to solve their modeling challenges.

ELEVATE YOUR MODELING WORKFLOWS WITH GEOVARIANCES PREMIUM GEOSTATISTICS

Isatis.py offers the robust and technologically advanced geostatistical algorithms found in Isatis.neo. This ensures that you obtain identical outcomes whether you use the software package or the library, thus facilitating testing. **Isatis.py** enables data loading and preparation, variographical analysis, interpolation, estimation with kriging, mineral resource modeling using Uniform Conditioning, and uncertainty analysis through conditional simulations. The library also allows loading and writing data directly from and in the Isatis.neo database.

INCREASE USER EFFICIENCY

Isatis.py benefits from the Python ecosystem and gives direct access to a vast range of Python libraries, including data science, artificial intelligence, and display functions. Developers can build and automate custom solutions and address specific requirements, even complex, more efficiently. **Isatis.py** uses a common language, making workflows easy to maintain and upgrade. It can be used separately in Python and Jupyter environments or integrated into software solutions on both Windows and Linux operating systems.

EASILY HANDLE BIG DATASETS

Isatis.py is parallelized and multithreaded, which makes it a particularly high-performance library that quickly manages datasets and models with millions of cells.

Release 1.2

Technical features

Data preparation

- Data import to Pandas containers
- Desurveying, declustering, compositing
- Contact analysis
- Mesh import and selection from meshes
- Polygon import and selection from polygons
- Advanced neighborhood
- Anamorphosis
- Local anisotropies
- Principal Component Analysis (PCA), Projection Pursuit Multivariate Transform (PPMT)
- Unfolding

Geostatistics

- Multivariate experimental variography and automatic fitting
- Block support correction
- Local parameter fitting
- (Co-)kriging, possibly with local anisotropies
- Rescaled (co-)kriging, kriging with measurement errors, Sampling density variance
- Conditional expectation
- Uniform Conditioning
- Continuous Simulations: Sequential Gaussian (SGS), Turning Bands (TBS), Direct Block (DBS), Stochastic Partial Differential Equations (SPDE)
- Categorical simulations: Sequential Indicators (SIS), Plurigaussian (PGS)

Graphical outputs

- Anamorphosis
- Variogram
- 2D cross-sections and polygons displayers

Technical specifications

- Provided as a .whl file.
- Both on Windows 10, Ubuntu 20.04, 64 bits.
- Compatible with Python 3.11, matplotlib, h5py, and ezdxf.
- Uses Pandas containers or HDF5 files as input and output.

