

PUBLIC SUMMARY

MultiMiner deliverable D3.1 "Timely mine site monitoring algorithms design and input data requirements" is the first deliverable of Work Package 3 - Timely mine site monitoring methods, covering the period between month 1 and month 22. This deliverable relates to tasks T3.1 Generic mine site monitoring algorithm on one hand, and to all subtasks in WP3 on the other hand related to the following thematic applications of monitoring environmental impacts and mine site activities :

- T2.2 Vegetation monitoring
- T3.3.1 Water quality and AMD monitoring
- T3.3.2 Ground moisture monitoring
- T3.4.1 Tailings storage facility monitoring
- T3.4.2 Dam stability monitoring
- T3.4.3 Open pit stability monitoring
- T3.5 Combined atmospheric and surface dust monitoring

Deliverable D3.1 summarizes the first phase of algorithm development related to WP3 Timely mine site monitoring. In particular, the report contains the following information for each thematic subtask:

- consolidated selection and initial requirements in terms of input Earth Observation (EO) imagery: spaceborne and drone imaging sources, at various spatial, spectral and temporal resolutions
- initial requirements for reference data used to train models, e.g. type, amount and spatial distribution of reference data
- algorithms design for thematic applications: inputs, outputs, general framework or workflow description of first versions of algorithms (prototypes) for each thematic application

The report also includes a detailed description of the prototype Generic Mine Site Monitoring (GMSM) algorithm, that aims to combine the various EO data sources in a way that:

- preserves input spectral, spatial and temporal resolutions
- is adaptable to the various WP3 thematic subtasks
- can be trained in a weakly supervised way, i.e. with a limited amount of reference data

D3.1 provides sufficient information on Timely mine site monitoring algorithms in order to prepare and setup demonstrations in WP4 Demonstrations.

