Radiological characterisation by means of 3D-laser modelling and positioning of measurements

AB SVAFO

MultiInfo 3D Laser Scan Solution AB
Field work:

**GPS measuring:**
- 4 points
- Coordinate system:
  - Sveref99 (X-Y), RH00 (Z)

**Reference surveying with TS:**
- 275

**Laser scanning:**
- 108
Pre-processing:
Register all scans into the same coordinate system as a point cloud
Modelling:

Create 3D CAD model

Create 3D laser image

Link 3D CAD model and 3D laser image
Modelling:
Create 3D CAD model from point clouds
Potential possibility:
3D measurement in point clouds and 3D model
3D visualisation of radiological measurement:

- Laserscanning
- AutoCAD platform
- SVALA-database

Different 3D data:
- 3D CAD model
- 3D laser image
- 3D coordinates
- Point cloud
- Cross-section

3D visualizing with Data i Svala
Different methods for 3D visualization of radiation measurements:

1) Classify radioactivity level with colour for different rooms

2) Capture position data (x-y-z) from laser scanning, and 3D visualization of radiation measurement with different symbols

- Different types of symbols represent different types of measuring methods
- Size of the symbol represent radiation levels
- Colour of the symbol represent different measuring time
Different measuring methods:
1) Drilling samples
2) Grab samples
3) Smear samples
Trend surface analysis of radioactivity level for whole floor
Ideas about classification of radioactivity measurements:

1) Classify radioactivity level for different objects, e.g. ventilation, drains, rooms.
2) Classify measuring data of alpha-, beta- and gamma radiation with different radioactivity levels
3) Different radioactivity levels corresponding to different colours

Capture position data (x-y-z) from laser scanning:

1) If RFID-tags can be identified, the position data are captured from laser scanning data
2) If no tags are used, but position description is available, e.g. on the ground, distances from the door and above the floor.
Visualization of gamma measurements:
Thanks!