|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Variable influence on process** | | | **Process influence on variables** | | |
| **Influence present? (Yes/No Description)** | **Time period/Climate domain** | **Handling of influence (How/If not - Why)** | **Influence present? (Yes/No Description)** | **Time period/Climate domain** | **Handling of influence (How/If not - Why)** |
| Temperature in bedrock | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Groundwater flow | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Groundwater pressure | Yes | Excavation/operation | Included in the model as fracture pore pressure. | Yes | Excavation/operation | Not considered. |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Gas phase flow | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Repository geometry | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Fracture geometry | Yes | Excavation/operation | Generic fracture systems. | Yes | Excavation/operation | Aperture changes evaluated from fracture stress results. |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Rock stresses | Yes | Excavation/operation | Site-specific rock stresses. Zero normal stress at ground surface and peripheries of tunnel openings. | Yes | Excavation/operation | Output from calculations. |
| Temperate | Thermal stresses are calculated in the model. Zero normal stress at ground surface and peripheries of tunnel openings. | Temperate |
| Periglacial | Stresses at repository depth from ice/crust/ mantle model (Lund et al. 2009). Thermal stresses are calculated in the model. | Periglacial |
| Glacial | Stresses at repository depth from ice/crust/mantle model (Lund et al. 2009). Otherwise same as for temperate period. | Glacial |
| Matrix minerals | Yes | Excavation/operation | Site-specific rock mechanics property data. | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Fracture minerals | Yes | Excavation/operation | Site-specific fracture property data. | Yes | Excavation/operation | Neglected. The change in mineral composition following a shear deformation is judged to be of minor importance to the mechanical behavior compared to the overall impact of the initial undisturbed composition. |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Groundwater composition | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Gas composition | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Structural and stray materials | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Saturation | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |