|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variables | 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 | Yes Temperature gradients are the driving force for heat transport. Thermal conductivity and heat capacity are temperature dependent. | Excavation/operation | Yes Check that local deposition sequence-dependant pre-heating effects can be ignored and evaluate potential effects of tunnel ventilation (see Section 2.1.7). | Yes 0 | Excavation/operation | Yes Heat transport neglected (see Section 2.1.7). |
| Temperate | Yes Site-specific temperature and thermal properties. Dependence of thermal properties on T accounted for in dimensioning calculations. Otherwise thermal properties for constant T. | Temperate | Yes Output from calculations. |
| Periglacial | Yes See Temperate above and Climate report. | Periglacial | Yes Output from calculations, see also Section 2.2 Freezing and Climate report. |
| Glacial | Glacial |
| Groundwater flow | Yes 0 | Excavation/operation | Yes Heat transport neglected (see Section 2.1.7). | No But indirectly through temperature | Excavation/operation | No See Section 3.1 Groundwater flow. |
| Temperate | Yes Influence of convection neglected; little significance. | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Groundwater pressure | Excavation/operation | Yes Heat transport neglected (see Section 2.1.7). | Excavation/operation |
| Temperate | Yes Influence neglected; little significance. | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Gas phase flow | Excavation/operation | Yes Heat transport neglected (see Section 2.1.7). | Excavation/operation | No See Section 3.2 Gas flow/dissolution. |
| Temperate | Yes Influence neglected; little significance. | Temperate |
| Periglacial | Yes See Temperate above and Climate report. | Periglacial |
| Glacial | Glacial |
| Repository geometry | Yes Affects heat flux from repository. Canister spacing particularly important in the near field. | Excavation/operation | Yes Check that local deposition sequence-dependant pre-heating effects can be ignored and evaluate potential effects of tunnel ventilation (see Section 2.1.7). | No 0 | Excavation/operation | No nan |
| Temperate | Yes Included in model. | Temperate |
| Periglacial | Yes Included in permafrost model (Climate report). | Periglacial |
| Glacial | Glacial |
| Fracture geometry | Yes 0 | Excavation/operation | Yes Heat transport neglected (see Section 2.1.7). | No But indirectly through rock stresses and temperature. | Excavation/operation | No See mechanical processes in Chapter 4. |
| Temperate | Yes Influence neglected; little significance. | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Rock stresses | No 0 | Excavation/operation | No nan | No But indirectly through temperature. | Excavation/operation |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Matrix minerals | Yes Determines thermal properties. | Excavation/operation | Yes Heat transport neglected (see Section 2.1.7). | No 0 | Excavation/operation | No nan |
| Temperate | Yes Use of site-specific thermal properties. | Temperate |
| Periglacial | Yes Use of site-specific thermal properties in permafrost model, Climate report. | Periglacial |
| Glacial | Glacial |
| Fracture minerals | Yes Marginally and locally. | Excavation/operation | Yes Heat transport neglected (see Section 2.1.7). | No But indirectly through temperature and groundwater composition. | Excavation/operation | No See chemical processes in Chapter 5. |
| Temperate | Yes Influence neglected; little significance. | Temperate |
| Periglacial | Yes Influence neglected; little significance, Climate report. | Periglacial |
| Glacial | Glacial |
| Groundwater composition | No 0 | Excavation/operation | No nan | No But indirectly through temperature. | Excavation/operation |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Gas composition | Excavation/operation | No 0 | Excavation/operation | No nan |
| Temperate | Temperate | No nan |
| Periglacial | Periglacial | No nan |
| Glacial | Glacial | No nan |
| Structural and stray materials | Excavation/operation | Excavation/operation | No nan |
| Temperate | Temperate | No nan |
| Periglacial | Periglacial | No nan |
| Glacial | Glacial | No nan |
| Saturation | Yes Affects scope and extent of convective heat transport. | Excavation/operation | Yes Check that local deposition sequence-dependant pre-heating effects can be ignored and evaluate potential effects of tunnel ventilation (see Section 2.1.7). | No But, indirectly through temperature. | Excavation/operation | No nan |
| Saturation | Yes Affects scope and extent of convective heat transport. | Temperate | Yes Influence neglected; little significance. | No But, indirectly through temperature. | Temperate | No nan |
| Saturation | Yes Affects scope and extent of convective heat transport. | Periglacial | Yes See Temperate above and Climate report. | No But, indirectly through temperature. | Periglacial | No nan |
| Saturation | Yes Affects scope and extent of convective heat transport. | Glacial | Yes See Temperate above and Climate report. | No But, indirectly through temperature. | Glacial | No nan |