

Task 2.2, Case B

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number of cells in r-dir [-]	50
radius of surrounding rock [m]	250
mass flow rate [kg/s]	8.80149
temperature inlet [$^{\circ}$ C]	45
temperature surface [$^{\circ}$ C]	11
end-of-simulation [years]	10
first time-step [days]	1
maximum time-step [days]	100
time-step factor	1.2
use pipe feedback	0
enable analytical solution	1

Table: Main parameters.

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Name	fluid	rock	wall	casing
density (ρ) [kg/m ³]	H ₂ O	$2.6 \cdot 10^3$	1	$8 \cdot 10^3$
heat_cap (C_p) [J/kgK]	H ₂ O	902.67	1	466
heat_cond (λ) [W/mK]	H ₂ O	2.423	$1 \cdot 10^{-5}$	43.268

Table: Material properties.

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Segment	1	2
nz_cells (N_z) [-]	30	35
length (l) [m]	$3 \cdot 10^3$	$3.5 \cdot 10^3$
temp_diff (ΔT) [$^{\circ}\text{C}$]	97.5	0
dr_tube (r_1) [m]	0.005	0.005
dr_wall (d_w) [m]	$1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$
dr_annulus (d_a) [m]	0.08085	0.08085
dr_layer1 (d_1) [m]	0.00805	0.00805
dr_layer2 (d_2) [m]	0.01	0.01
dr_layer3 (d_3) [m]	0.01	0.01
dz_ds (dz/ds) [-]	-1	0
props_wall [-]	wall	wall
props_layer1 [-]	casing	casing
props_layer2 [-]	rock	rock
props_layer3 [-]	rock	rock
props_rock [-]	rock	rock

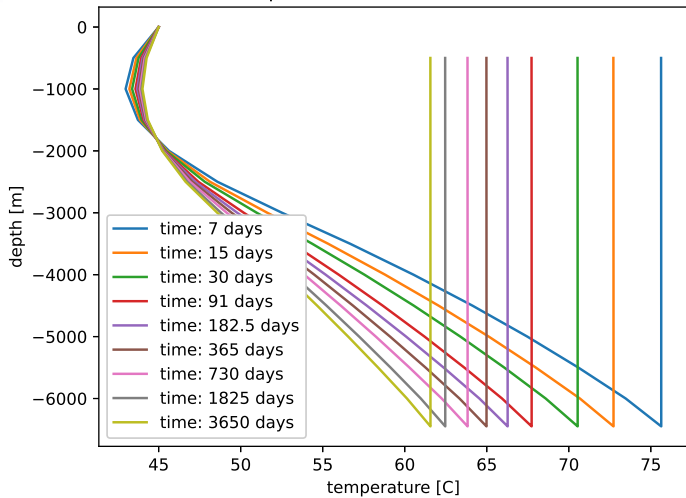
Table: Segment parameters.

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		$r=0$
inner tube (fluid)	$dr=5 \text{ mm}$	$r=5 \text{ mm (d=10 mm)}$
wall (wall)	$dr=0 \text{ mm}$	$r=5 \text{ mm (d=10 mm)}$
annulus (fluid)	$dr=81 \text{ mm}$	$r=86 \text{ mm (d=172 mm)}$
layer1 (casing)	$dr=8 \text{ mm}$	$r=94 \text{ mm (d=188 mm)}$
layer2 (rock)	$dr=10 \text{ mm}$	$r=104 \text{ mm (d=208 mm)}$
layer3 (rock)	$dr=10 \text{ mm}$	$r=114 \text{ mm (d=228 mm)}$
rock (rock)	$dr=250 \text{ m}$	$r=250 \text{ m (d=500 m)}$

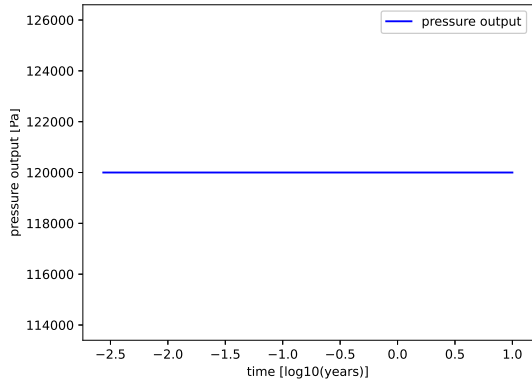
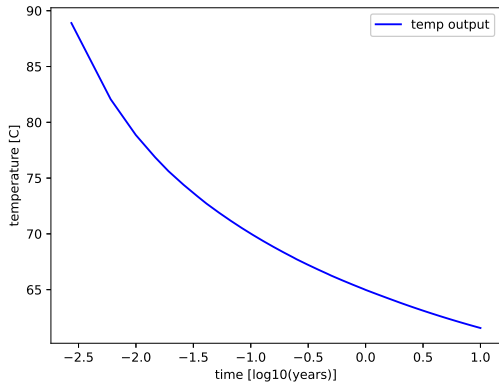
Table: Well radii for segment 1.

Well temperature (annulus and inner tube)



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