Task 2.2, Case A

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June 2023

Task 2.2, Case A

number of cells in r-dir [-]	50
radius of surrounding rock [m]	250
mass flow rate [kg/s]	8.80149
temperature inlet [°C]	14.72
temperature surface [°C]	21.111
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/m3]	H_2O	$2.6 \cdot 10^3$	1	$8 \cdot 10^3$
heat_cap (C_p) [J/kgK]	H_2O	902.67	1	466
heat_cond (λ) [W/mK]	H_2O	2.423	$1 \cdot 10^{-5}$	43.268

Table: Material properties.

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Segment	1
nz_cells (N_z) [-]	250
length (l) [m]	$1.8288 \cdot 10^3$
temp_diff (ΔT) [°C]	27.6697
dr_tube (r_1) [m]	0.005
dr_wall (d_w) [m]	$1 \cdot 10^{-4}$
dr_annulus (d_a) [m]	0.0808482
dr_layer1 (d_1) [m]	0.008051
dr_layer2 (d_2) [m]	0.01
dr_layer3 (d_3) [m]	0.01
dz_ds (dz/ds) [-]	-1
props_wall [-]	wall
props_layer1 [-]	casing
props_layer2 [-]	rock
props_layer3 [-]	rock
props_rock [-]	rock

Table: Segment parameters.

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

Table: Well radii for segment 1.

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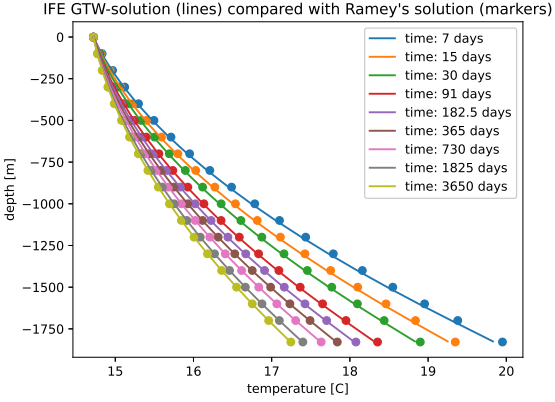

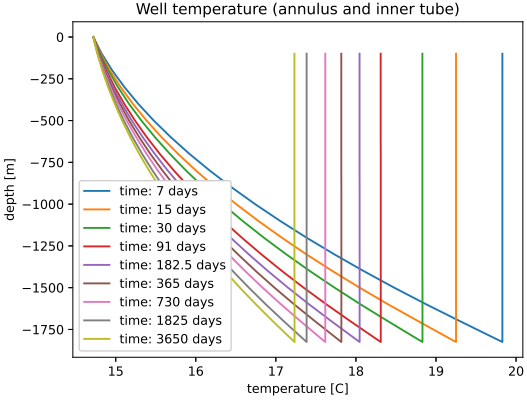

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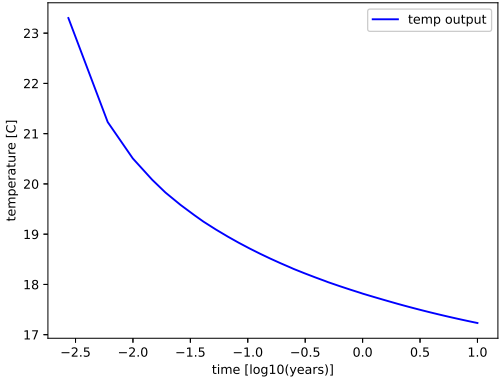

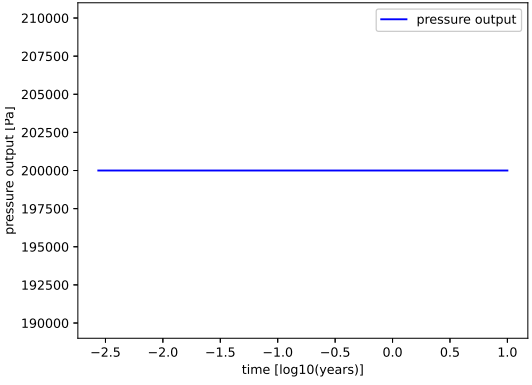
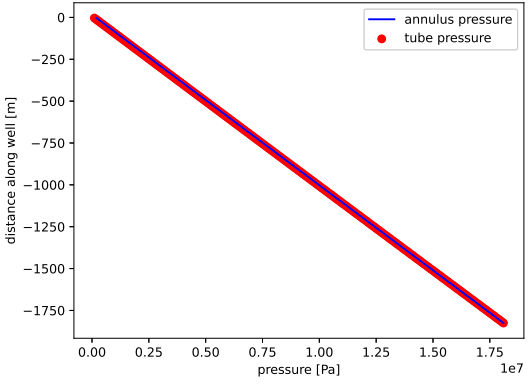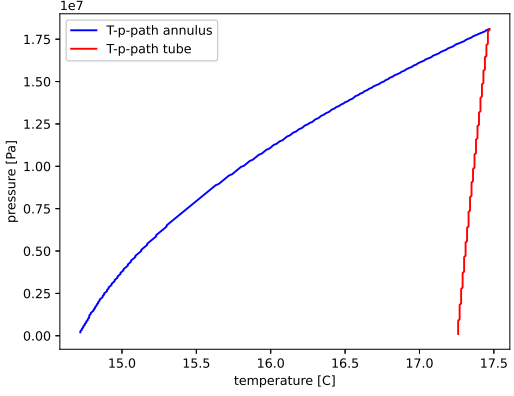
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