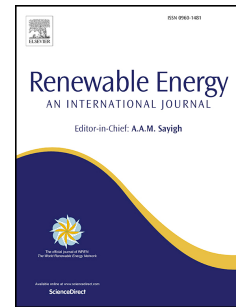


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Comparative study of straight and spiral Earth Air Tunnel Heat Exchanger system operated in cooling and heating modes

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Abbreviations

EATHE	-	Earth Air Tunnel Heat Exchanger
HDPE	-	High Density Polyethylene
PVC	-	Poly Vinyl Chloride
GSHP	-	Ground Source Heat Pump
COP	-	Coefficient of Performance
CFD	-	Computational Fluid Dynamics
RTD	-	Resistance Temperature Detectors

Nomenclature

English Symbols

Notation	Description	Unit
Q	Cooling/heating capacity	W
$\dot{m}$	Mass flow rate	kg s ⁻¹
C_p	Specific heat at constant pressure	J kg ⁻¹ K ⁻¹
T_{in}	Inlet air temperature	°C
T_{out}	Outlet air temperature	°C
k	Turbulent kinetic energy	m ² s ⁻²

Greek Symbols

Notation	Description	Unit
ρ	Density of air	kg m ⁻³
α	Thermal diffusivity	mm ² s ⁻¹
ε	Kinetic energy dissipation rate	m ² s ⁻³

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