

## Building Specifics

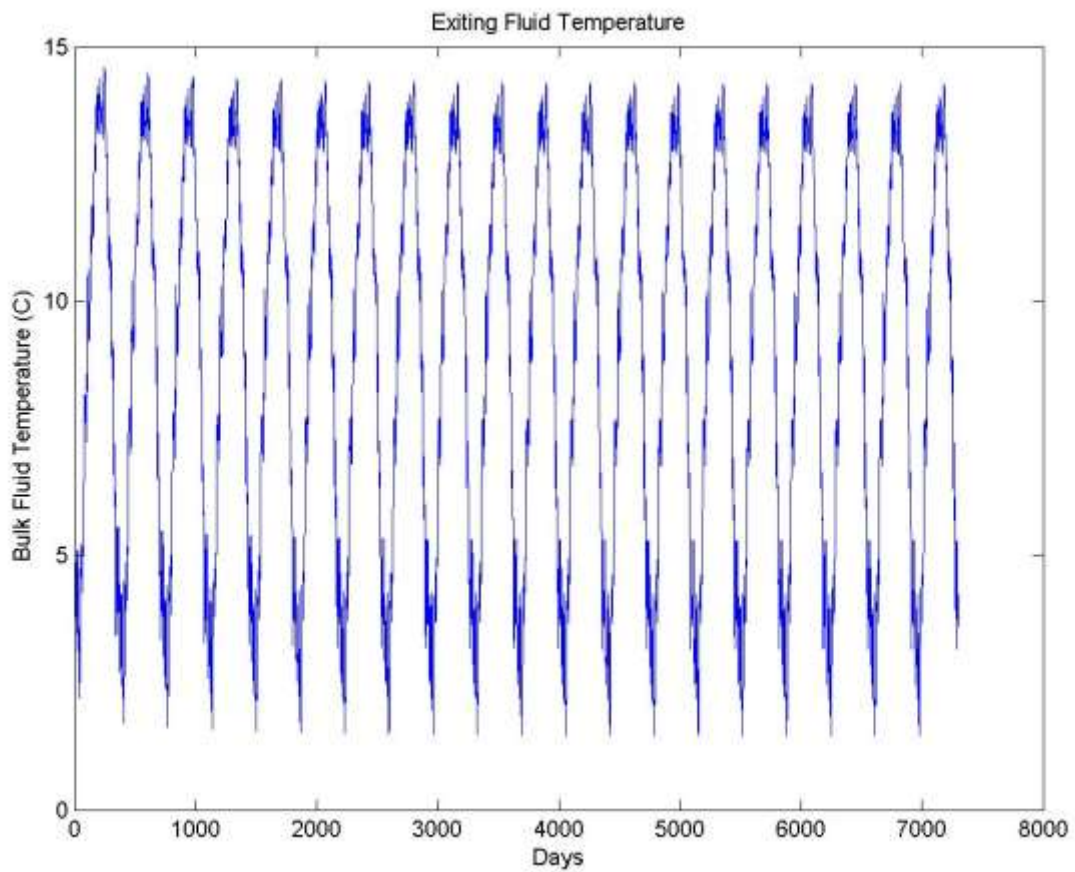
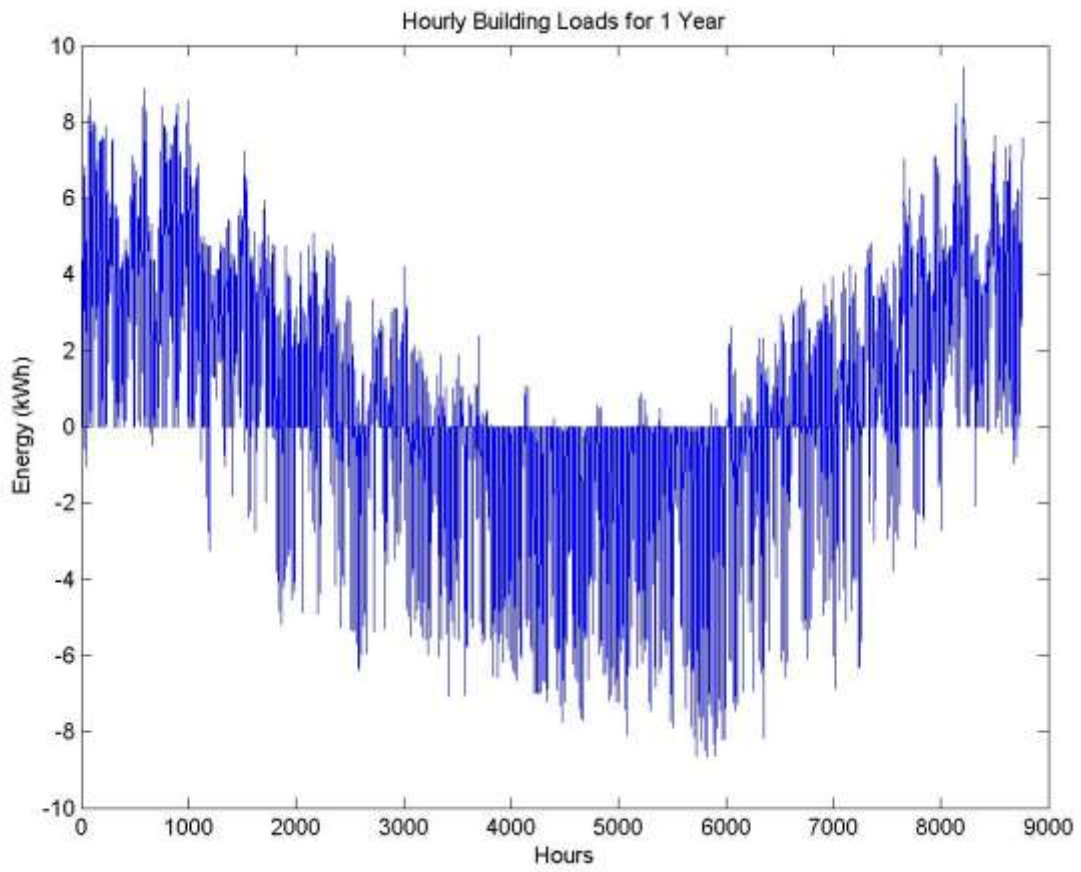
Floor plan Rectangle (18.6m x 10 m)	2000 ft <sup>2</sup> / 186 m <sup>2</sup>
Air Infiltration	'Moderately Sealed' (.65 ACH)
Window area	22.4 m <sup>2</sup> / 241 ft <sup>2</sup>
Number of exterior doors	2
Ceiling Height	8 ft. / 2.44 m
Winter Thermostat	70 °F / 21 °C
Summer Thermostat	77 °F / 25 °C
Exterior wall material layers	wood siding, 1/2" plywood, 2x4 wood studs and R11 insulation, 1/2" gypsum board
Exterior Ceiling/Attic material Layers	R-13, 2x6 wood studs, gypsum board

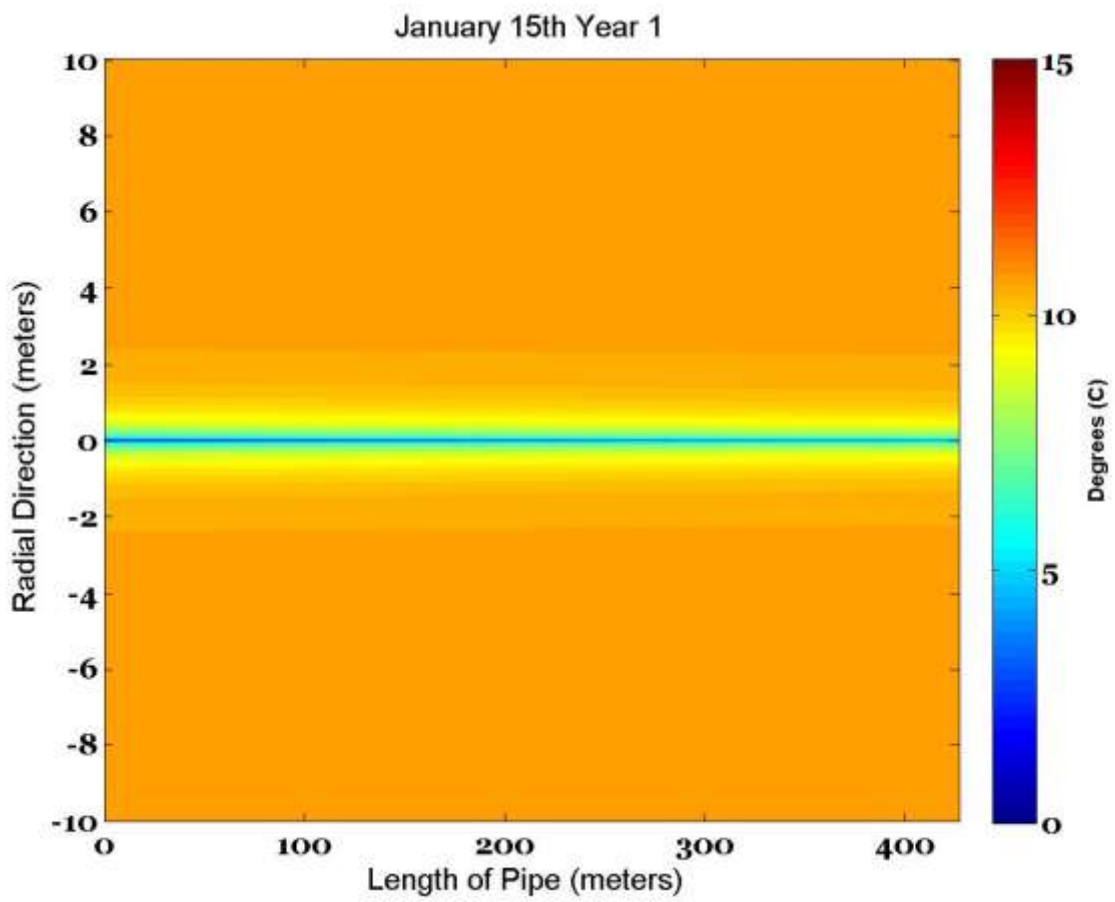
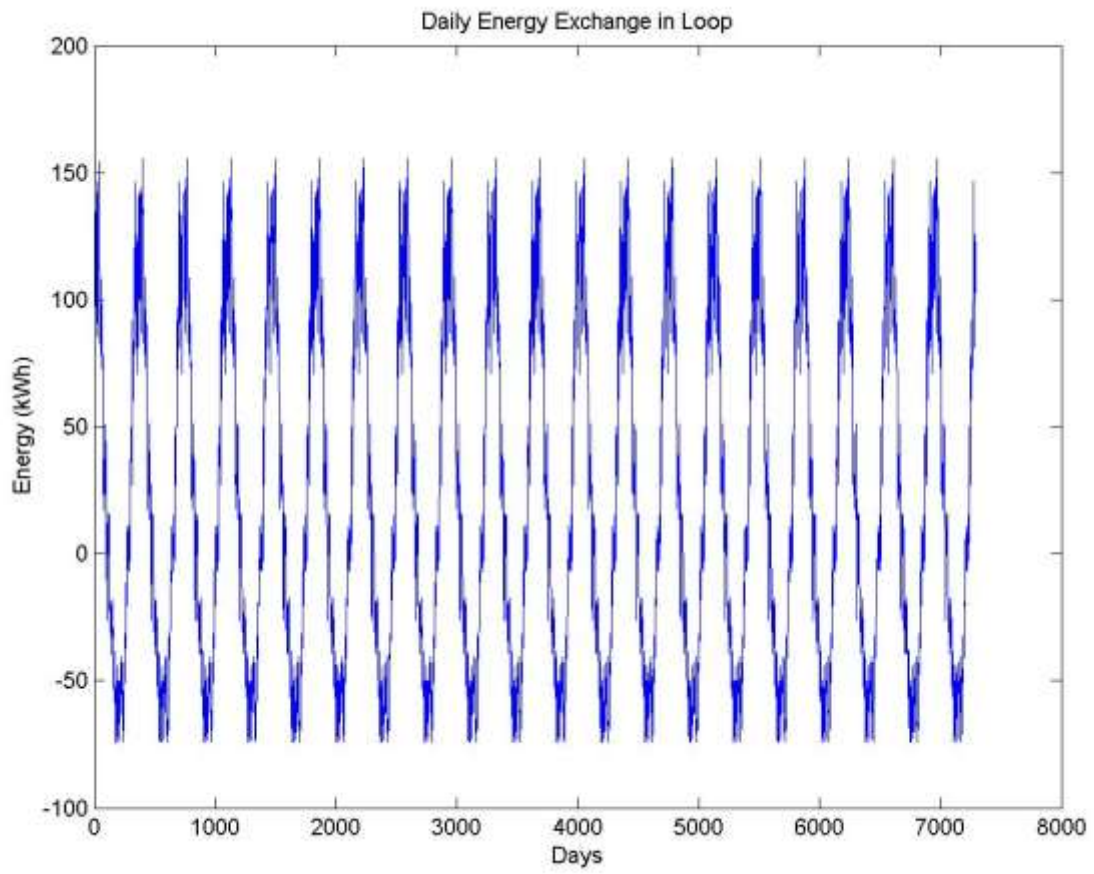
## Building Load Analyiss

Peak Cooling Load	8646 Whr
Peak Heating Load	9432 Whr
Extreme Low Outdoor Drybulb	-22.2 °C
Extreme High Outdoor Drybulb	37.1°C
Chosen Heat Pump Size	3 ½ ton unit

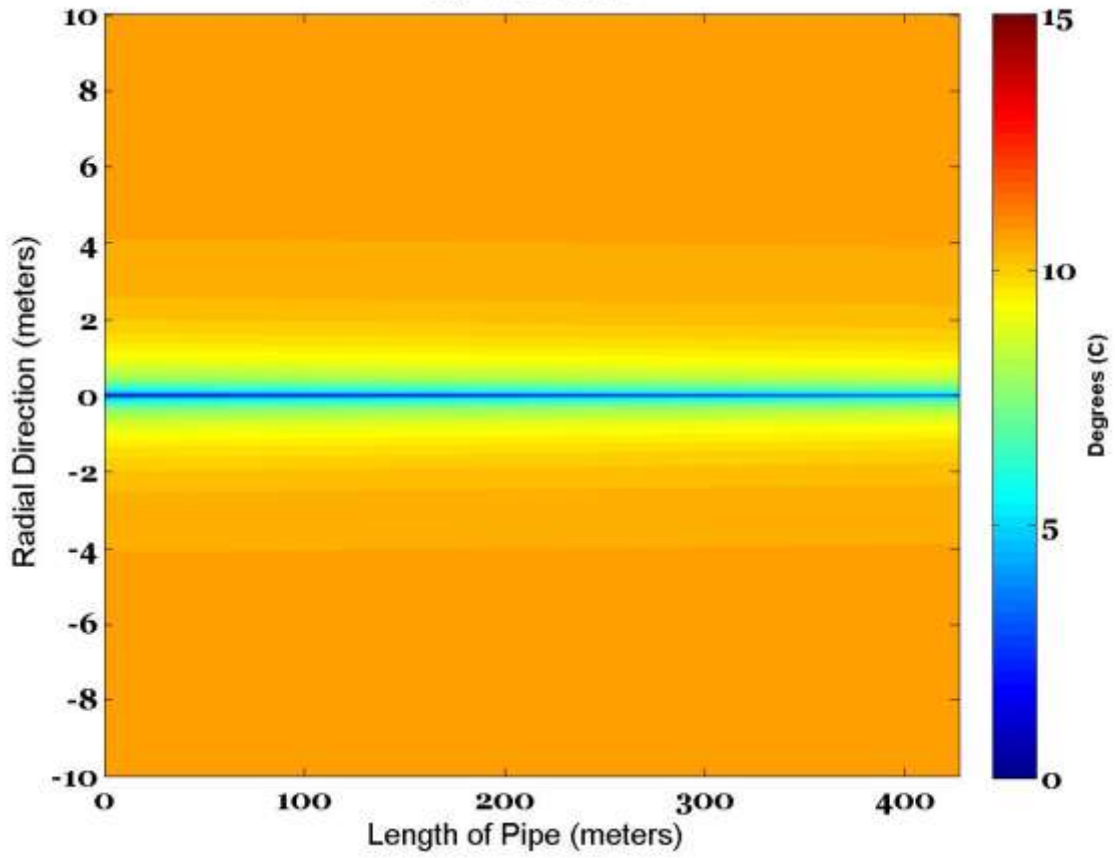
## Geothermal Design Inputs

Time step	Daily
Years simulated	20 years
Length of tube	427 m
Inner Radius of pipe	15.011 mm
Thickness of Pipe Wall	3.378 mm
Fluid Thermal Conductivity (water)	0.58 W/m-C
Fluid Specific Heat	4220 J/kg-C
Fluid Density	1002 kg/m <sup>3</sup>
Fluid Dynamic Viscosity	0.001 N-s/m <sup>2</sup>
Tube Thermal Conductivity	0.49 W/m-C
Tube Specific Heat	1340 J/kg-C
Tube Density	941 kg/m <sup>3</sup>
Earth Thermal Conductivity	1.3 W/m-C
Earth Specific Heat	1813 J/kg-C
Earth Density	1280 kg/m <sup>3</sup>
Fluid Velocity	.87341 m/s
Earth Temperature	10.6 °C
Fluid Initial Temperature	5 °C

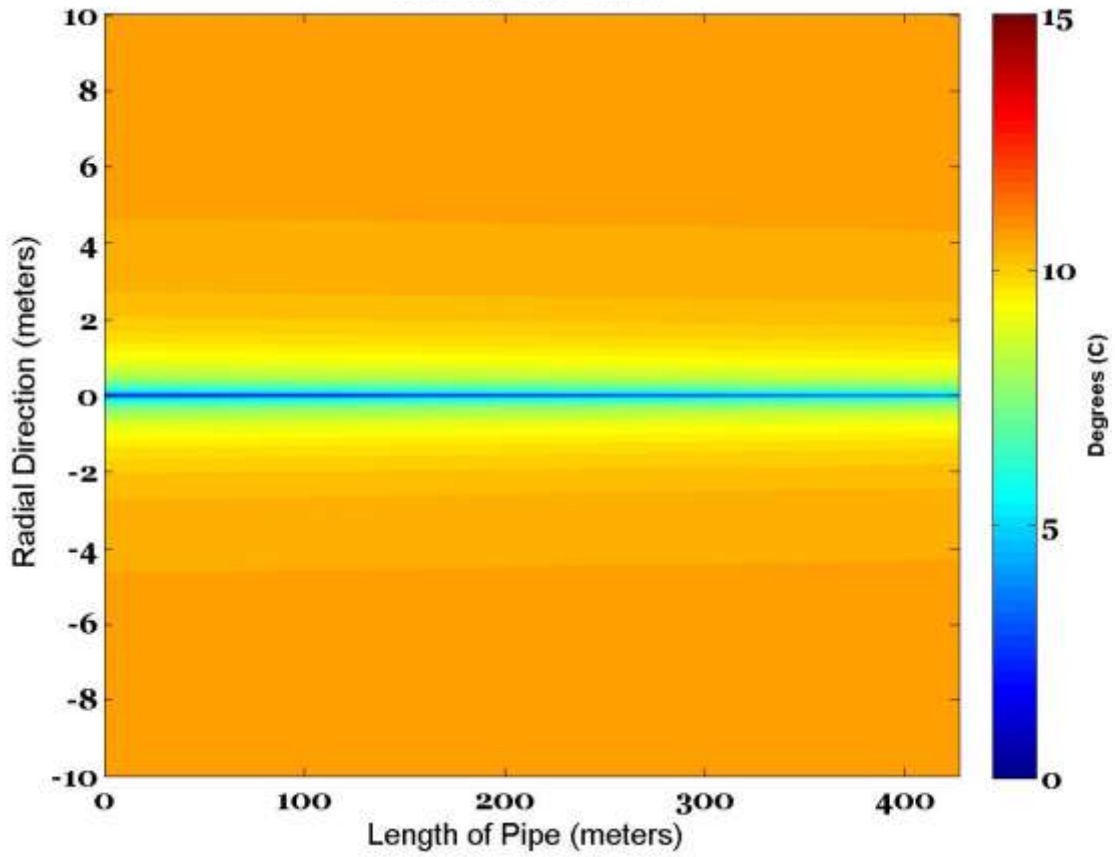




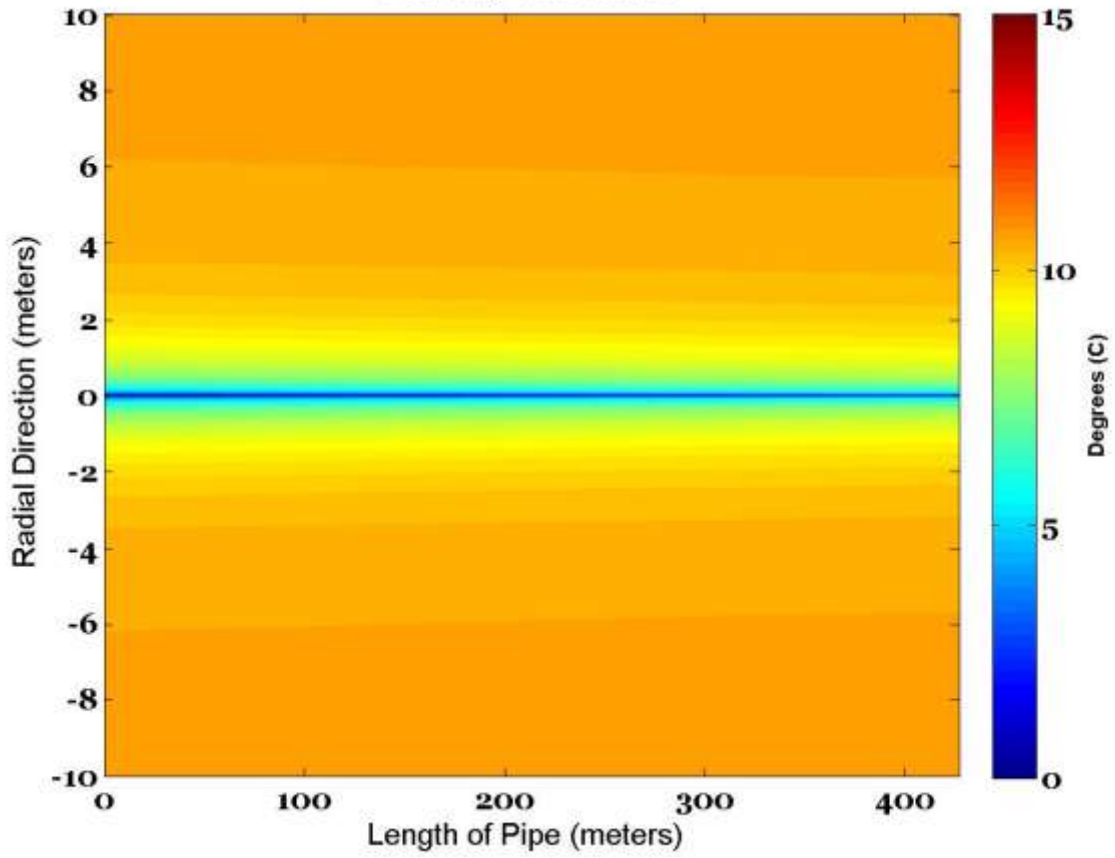
July 15th Year 1



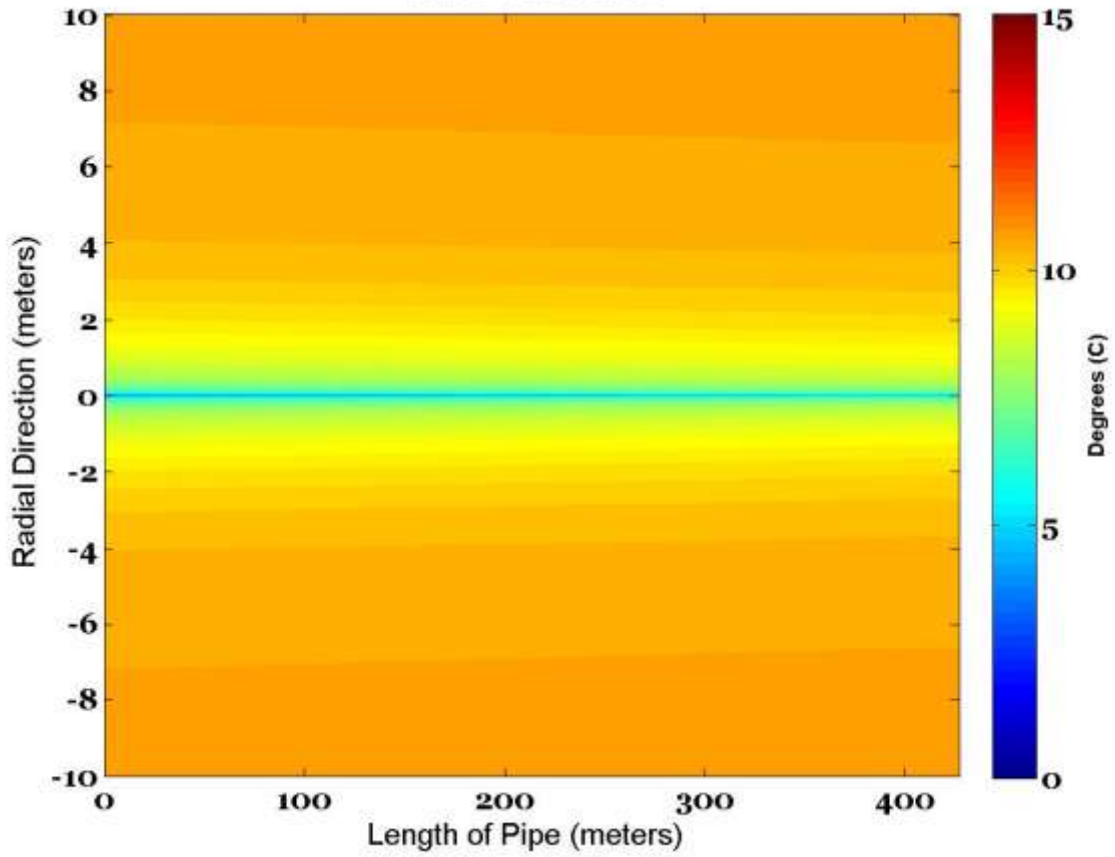
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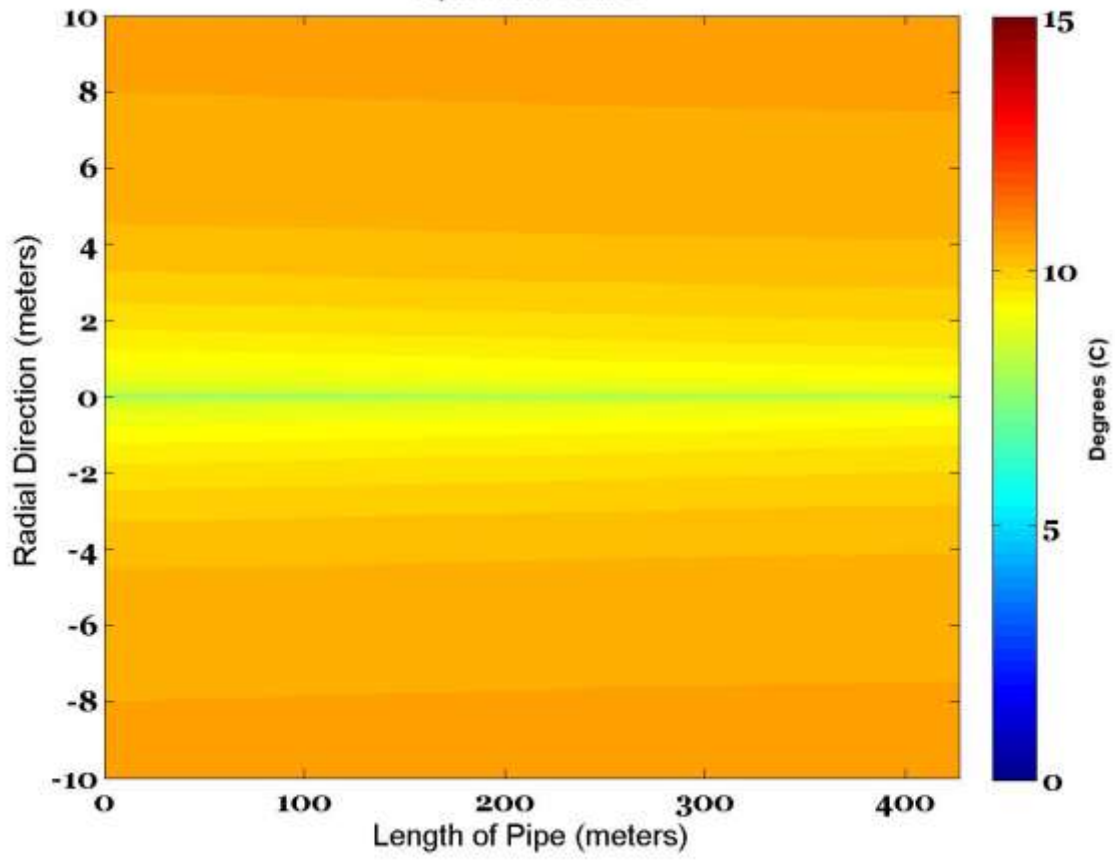
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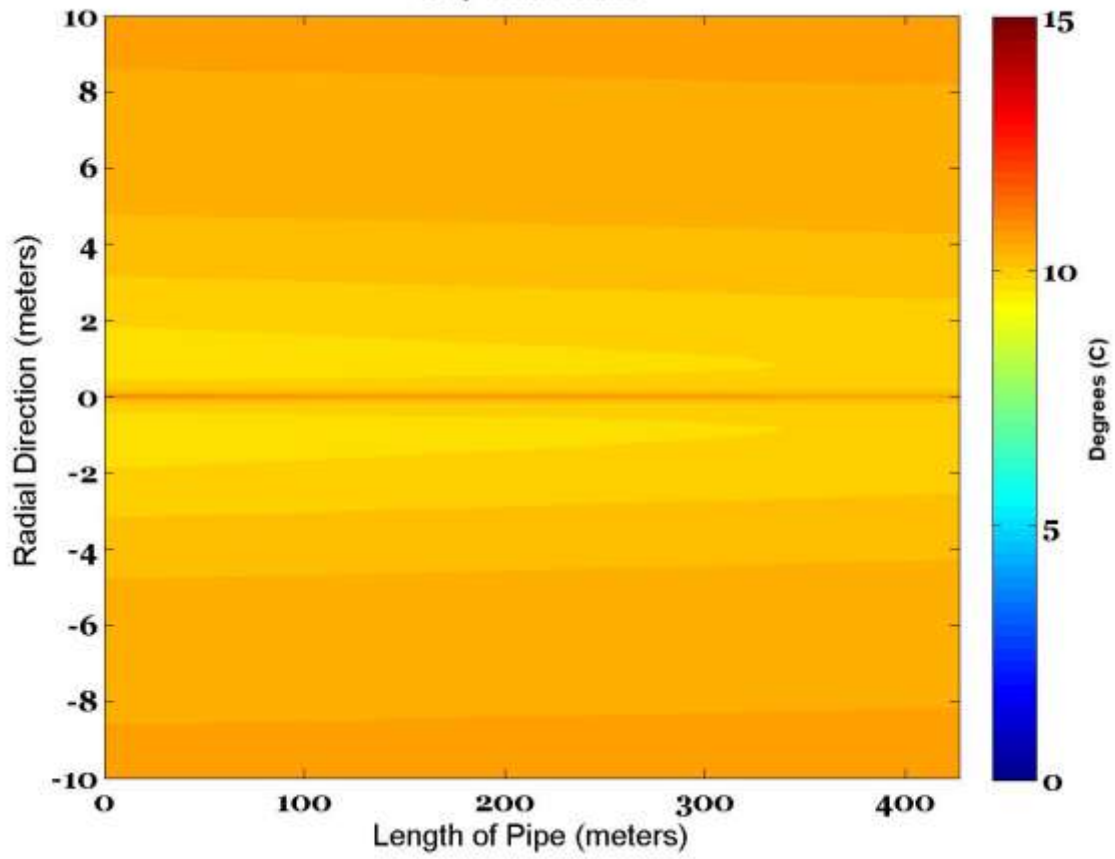
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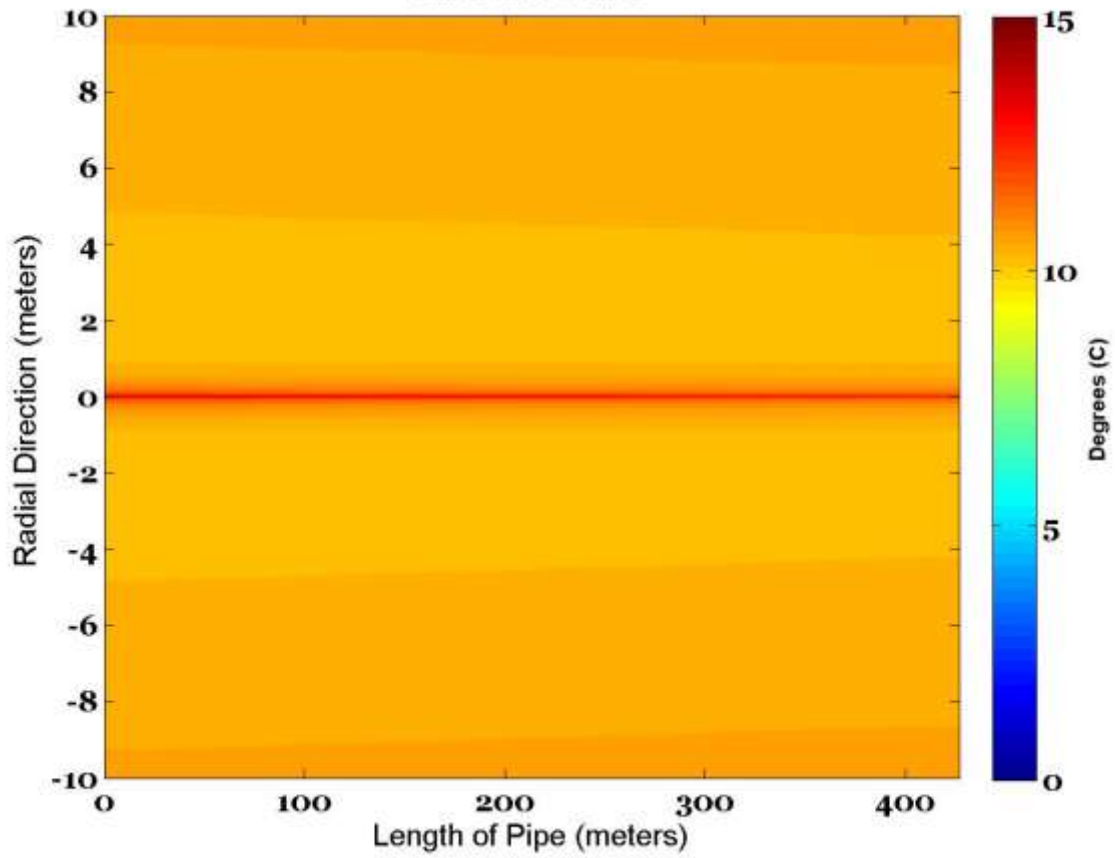
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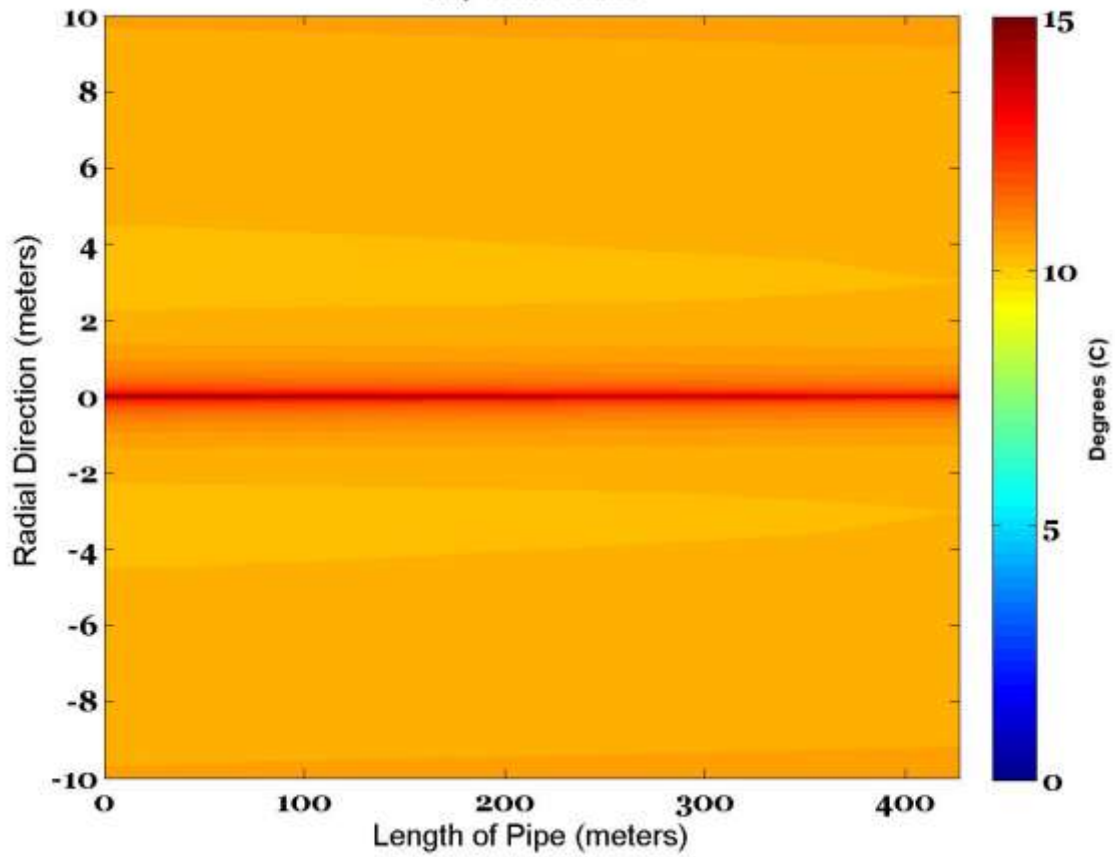
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June 15th Year 2

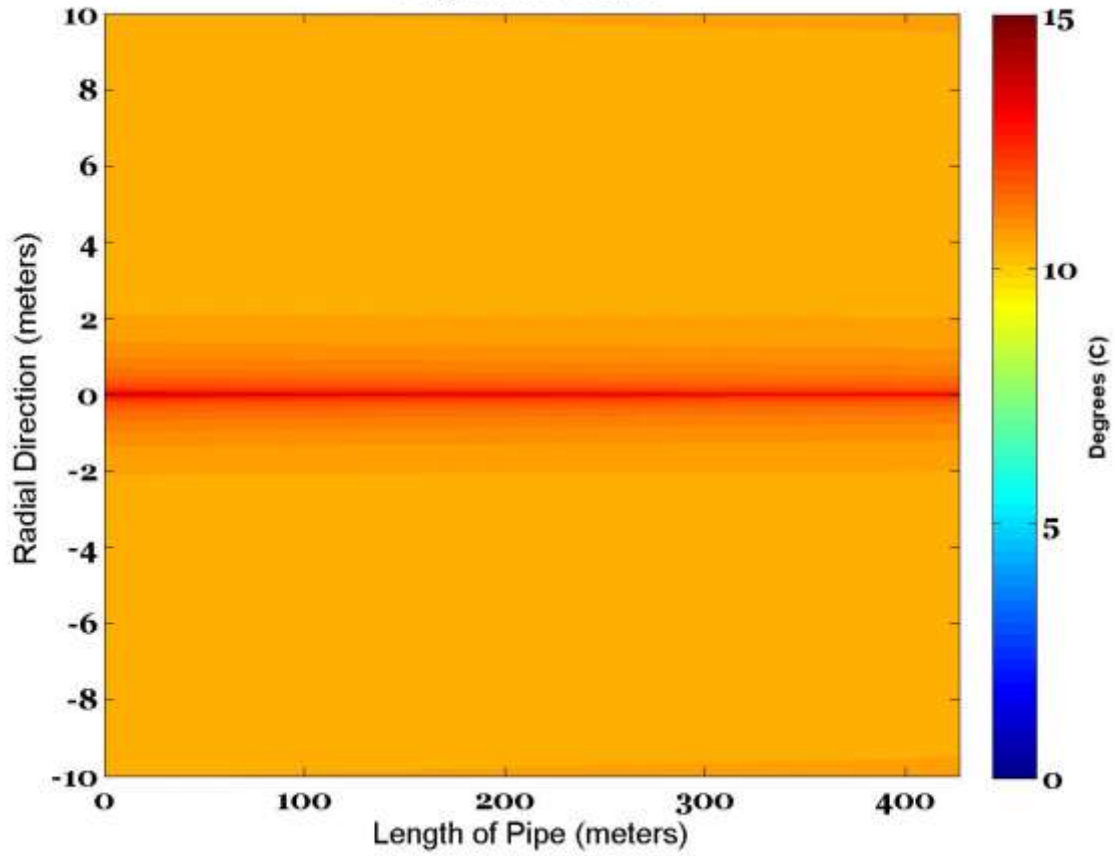


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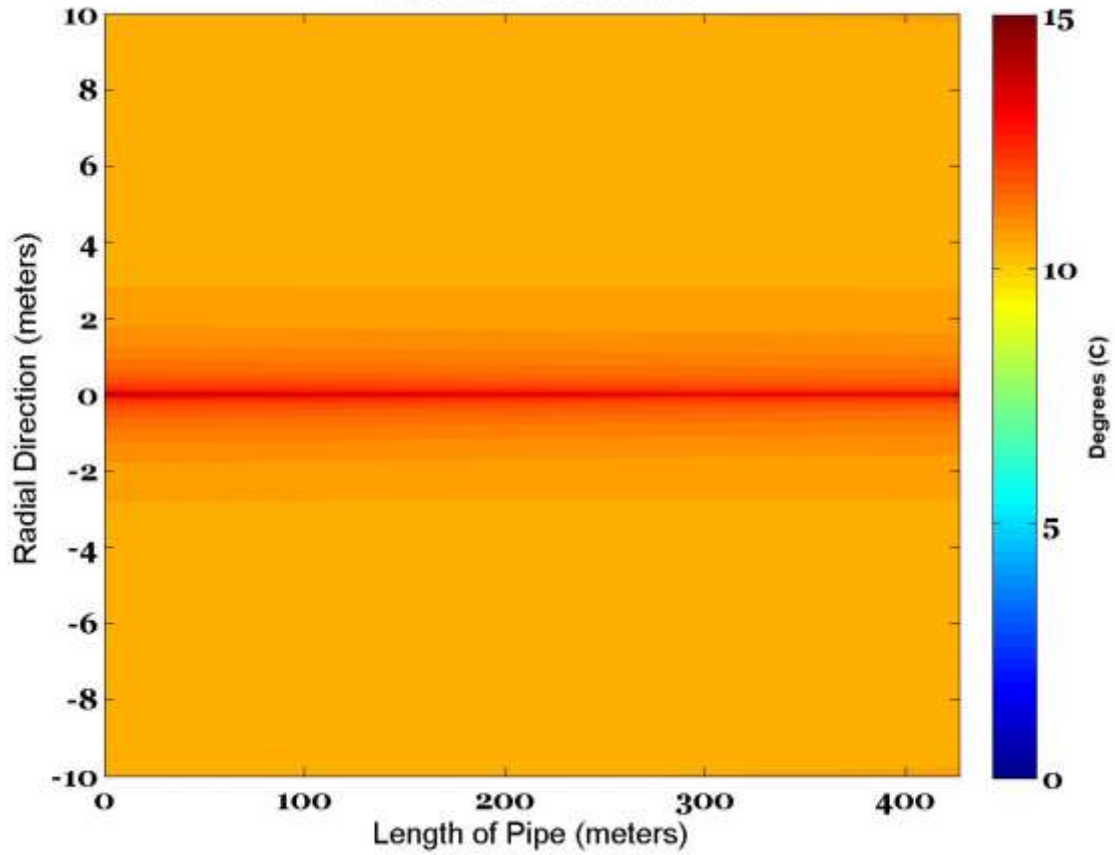




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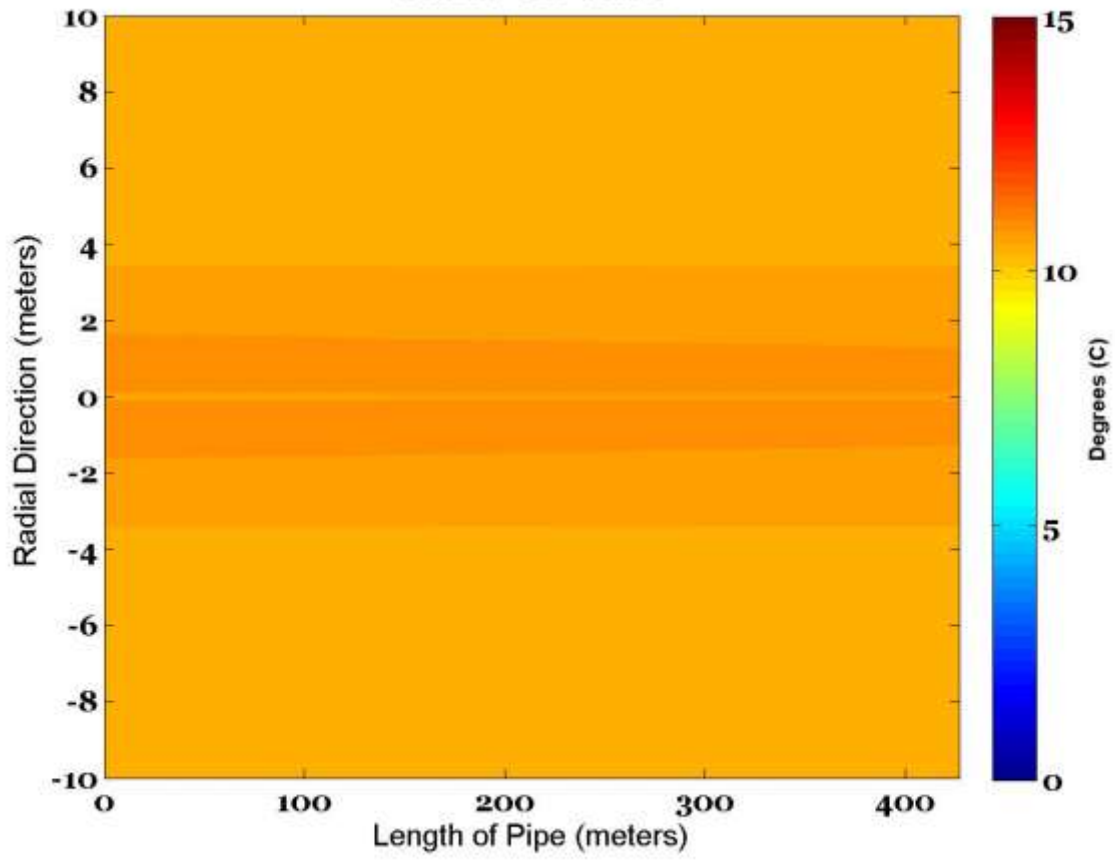


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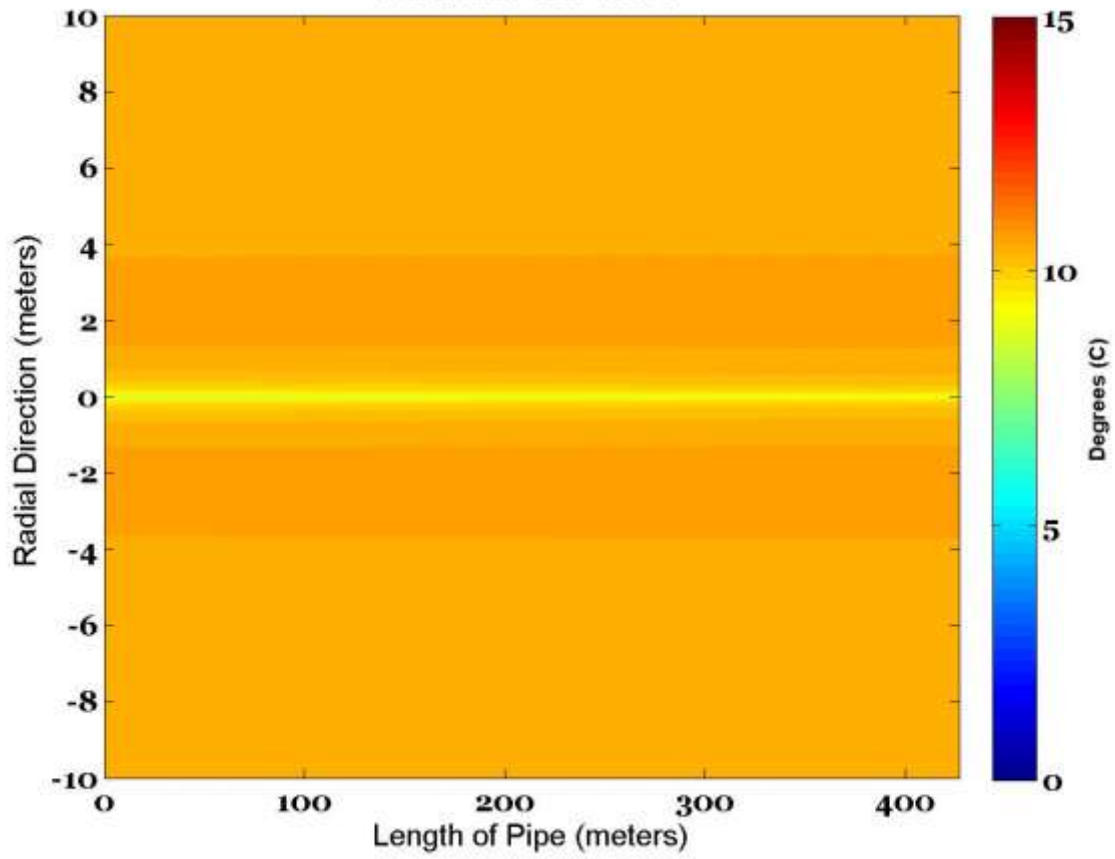




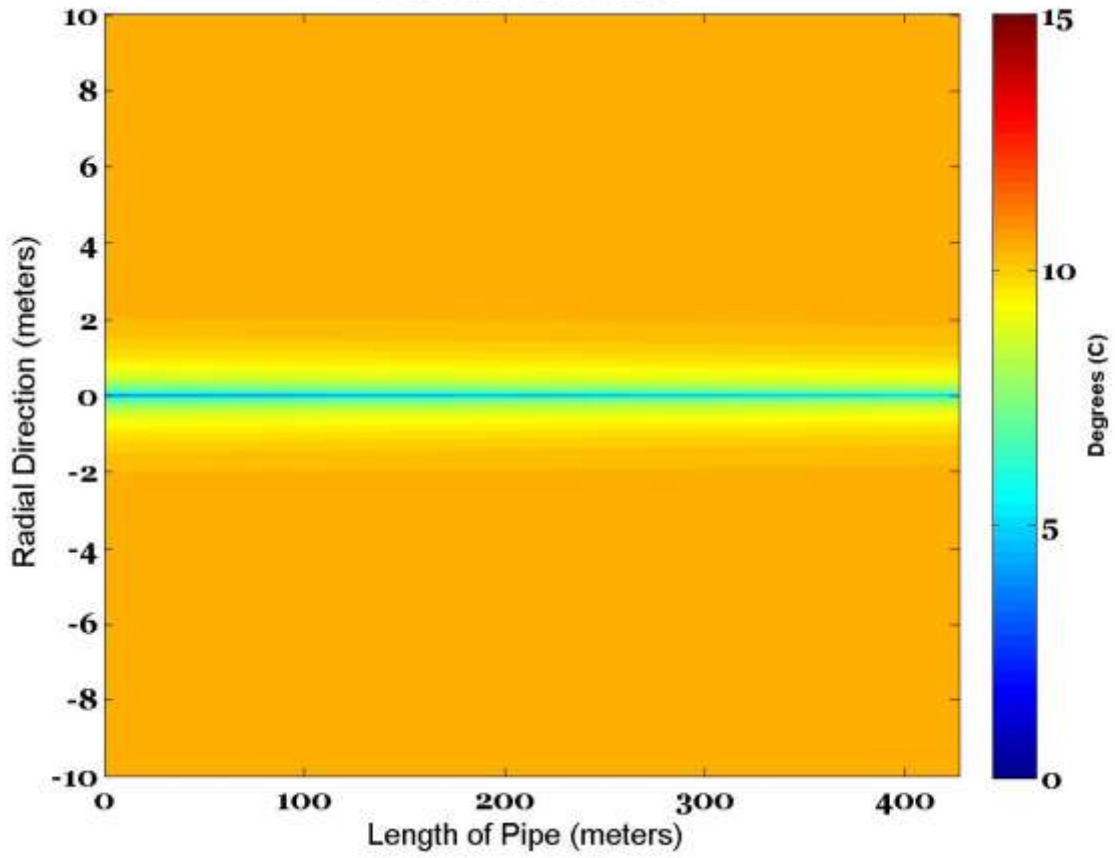
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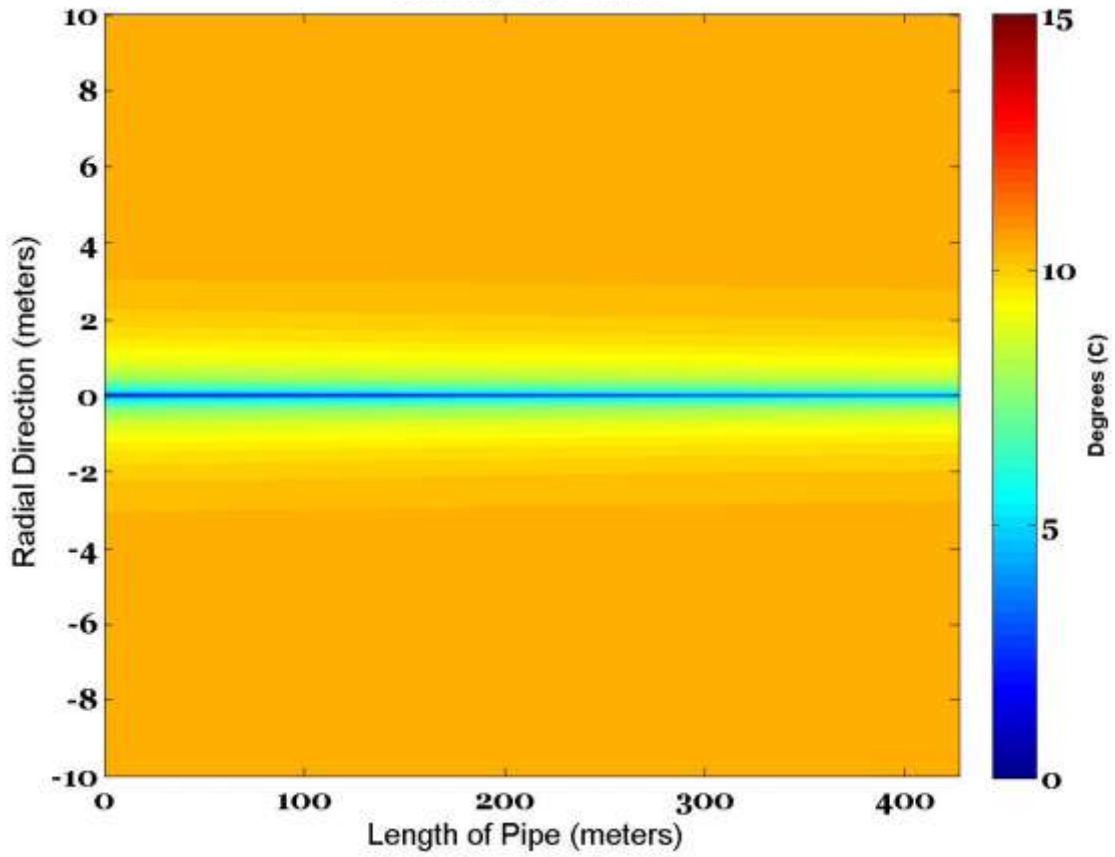
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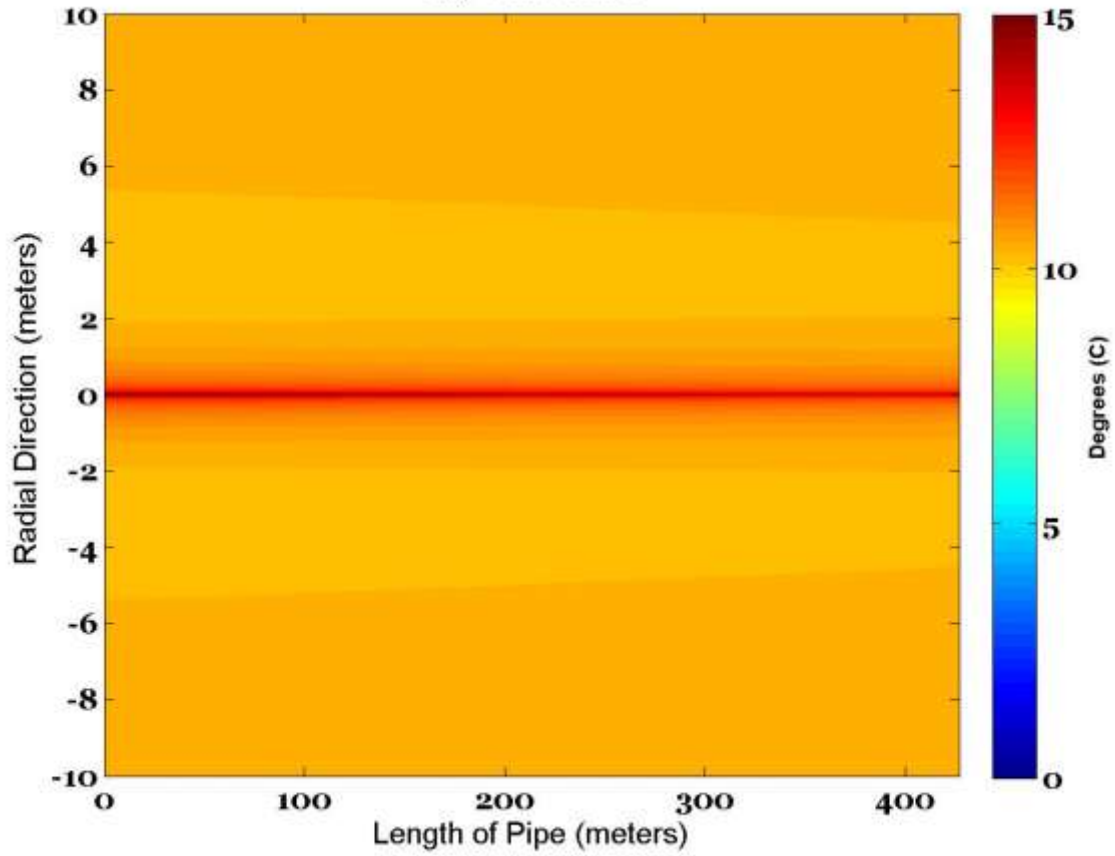
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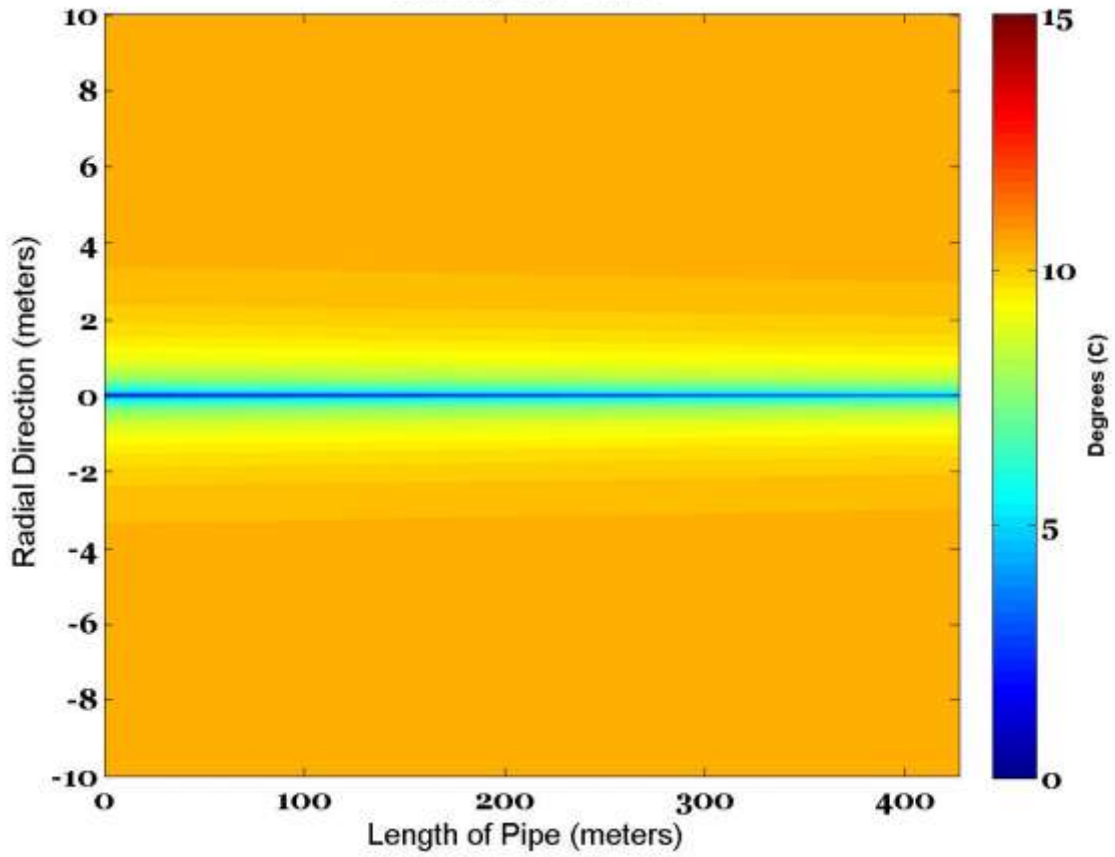
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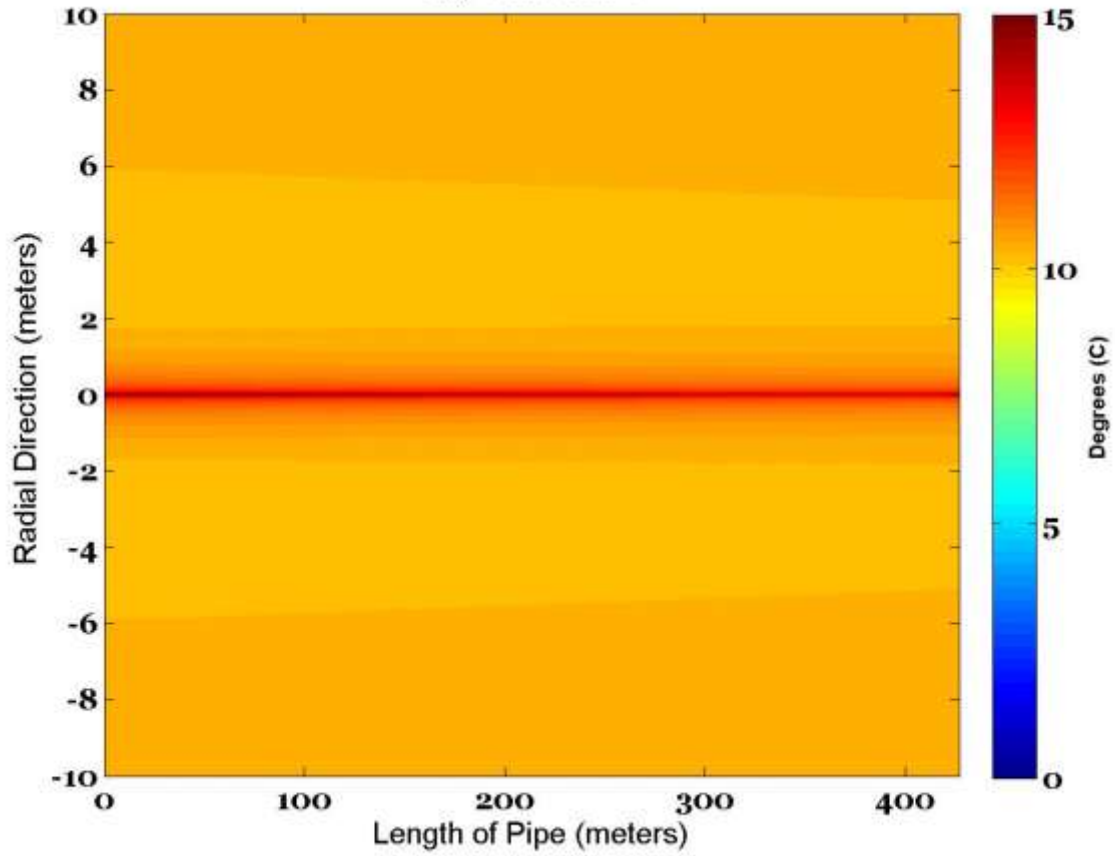
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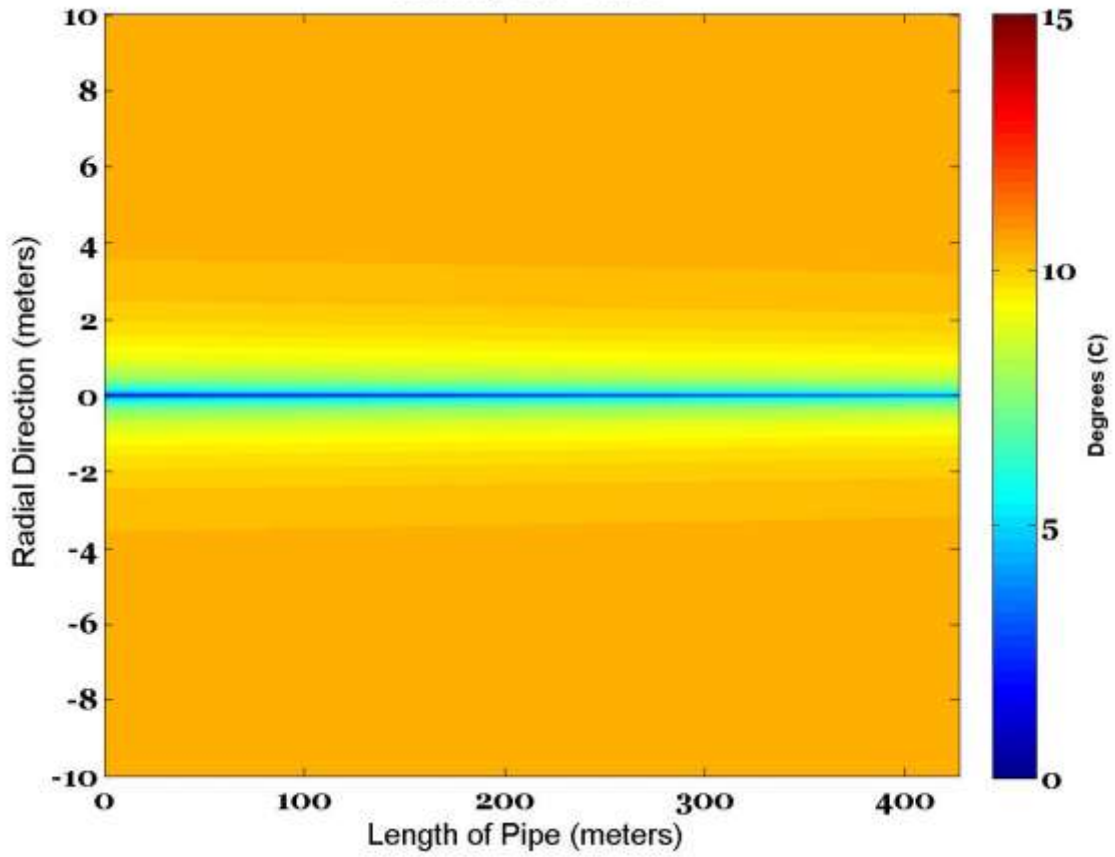
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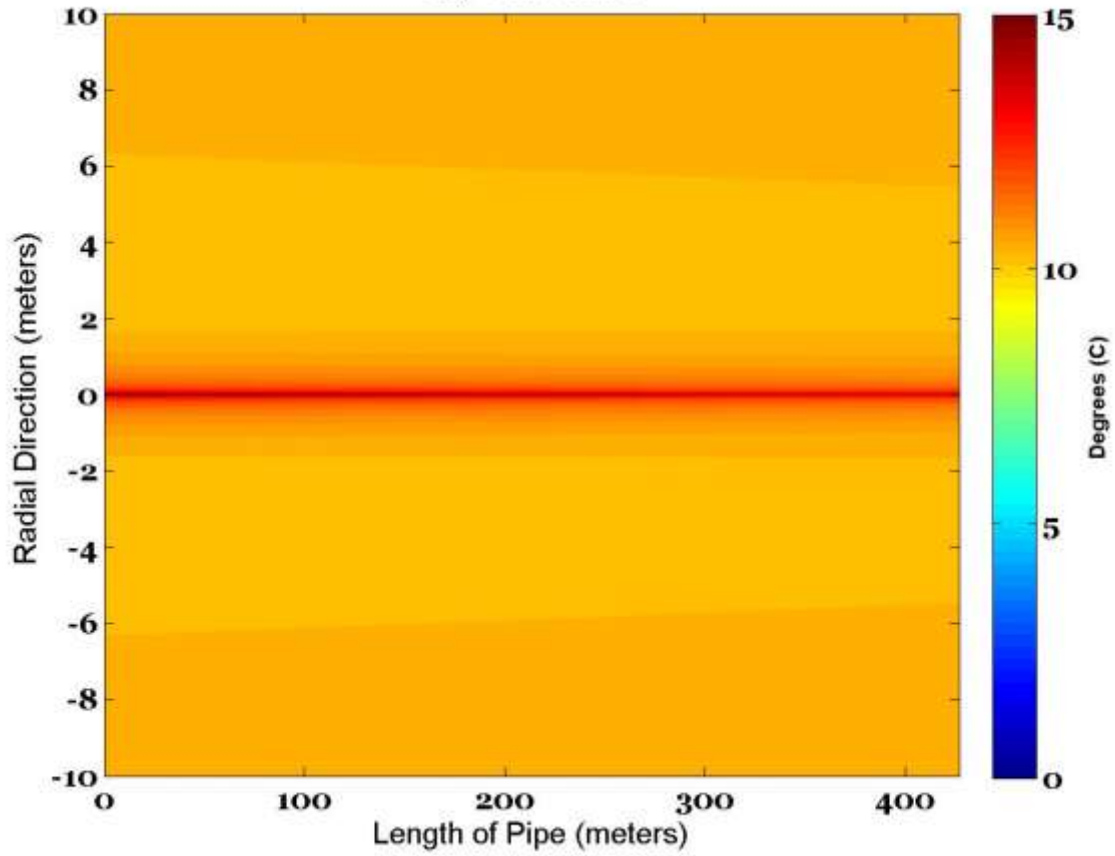
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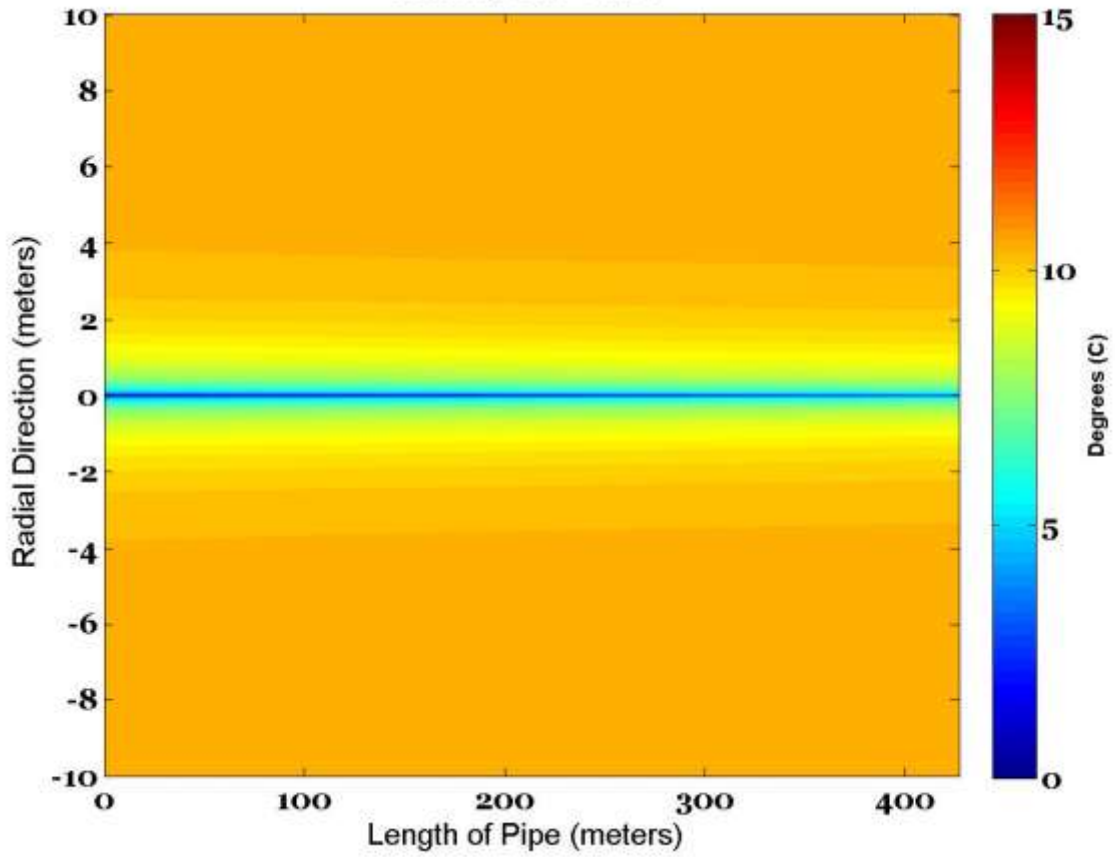
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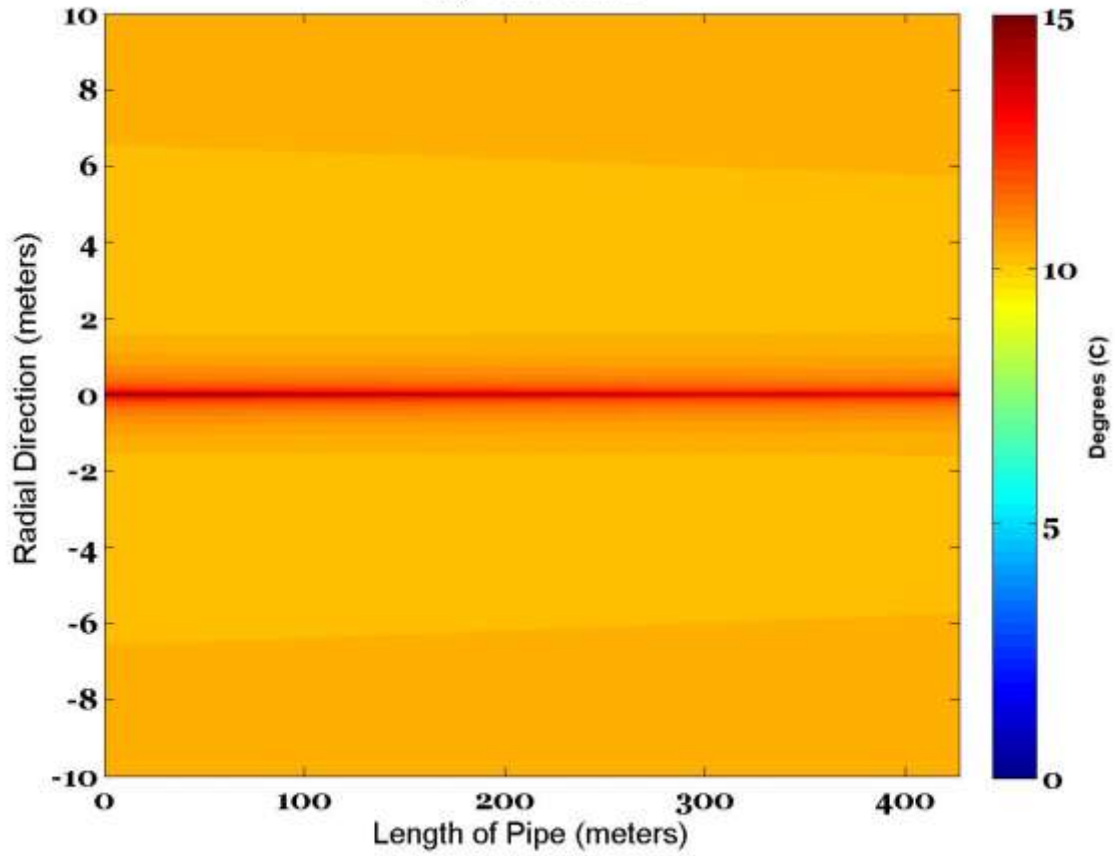
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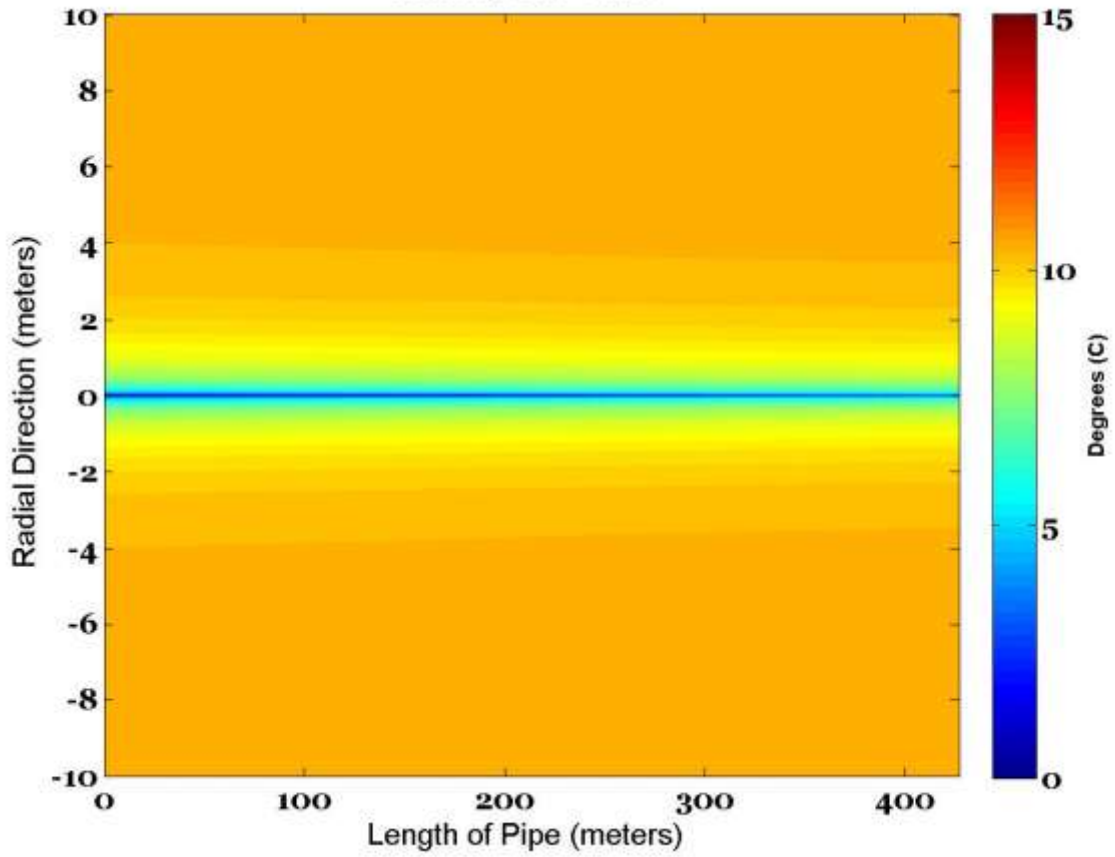
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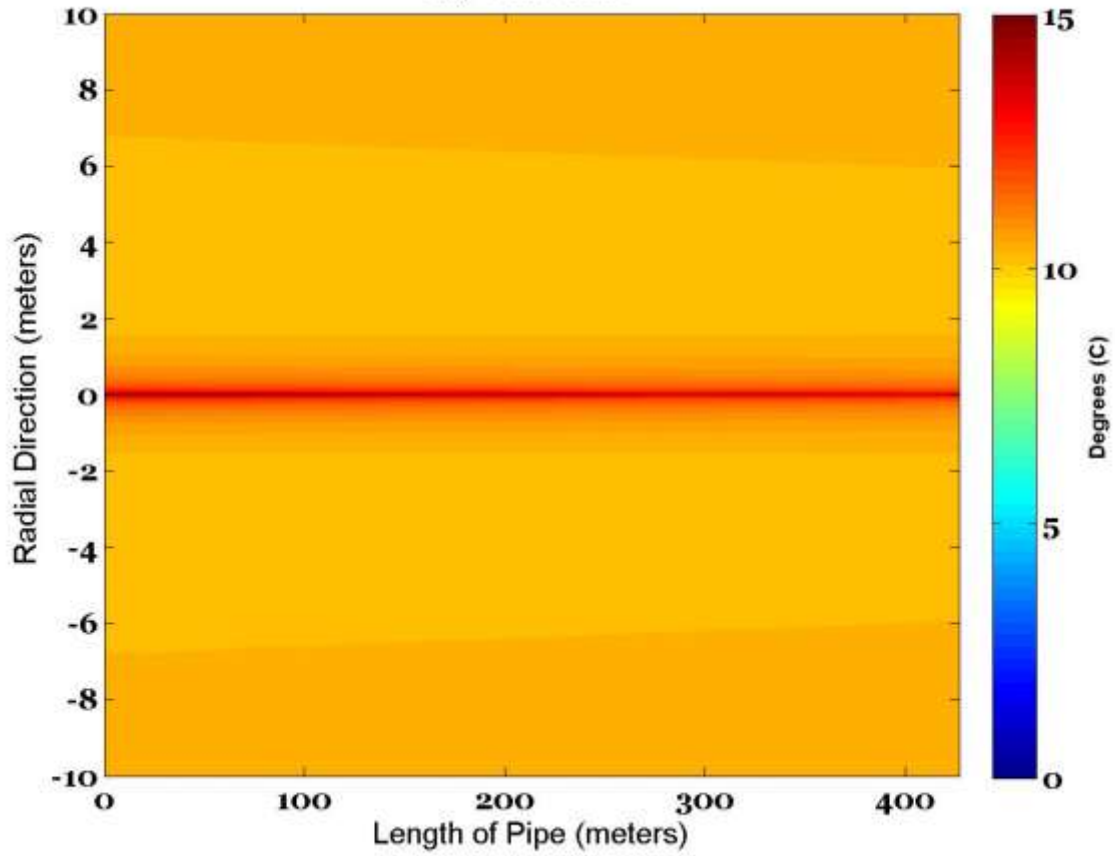
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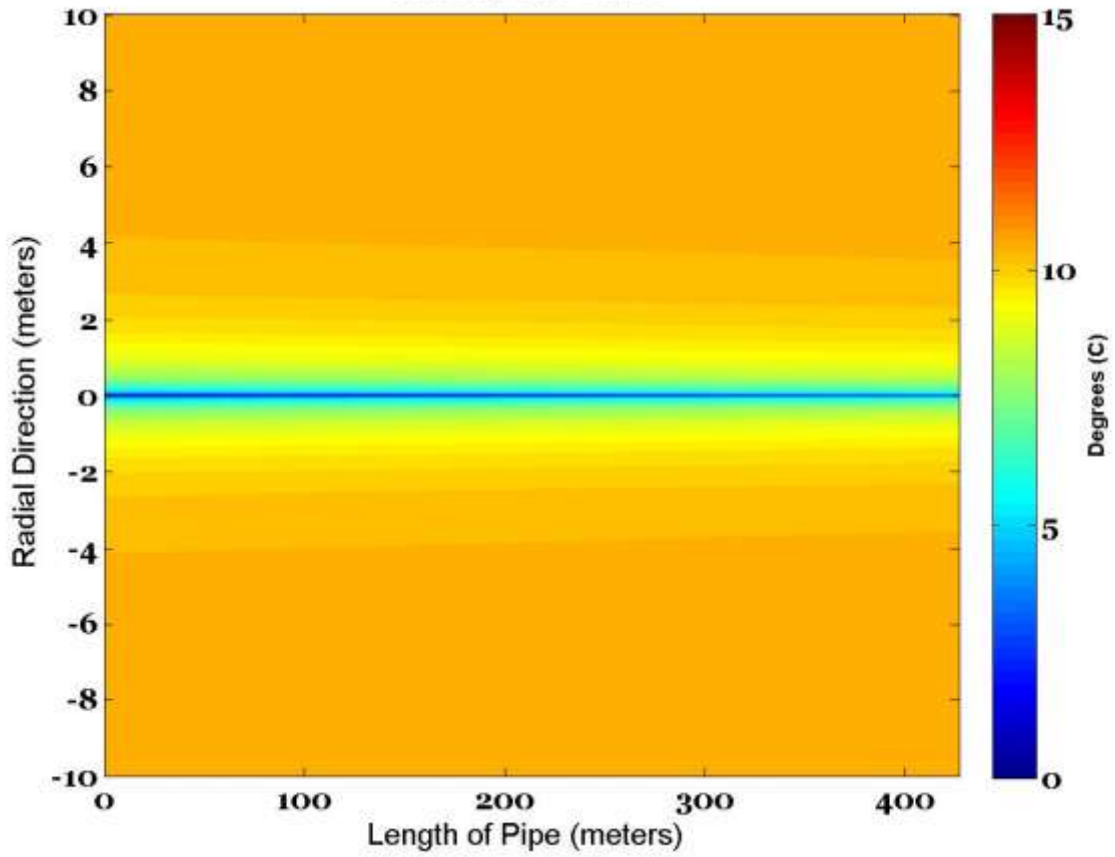
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July 15th Year 7

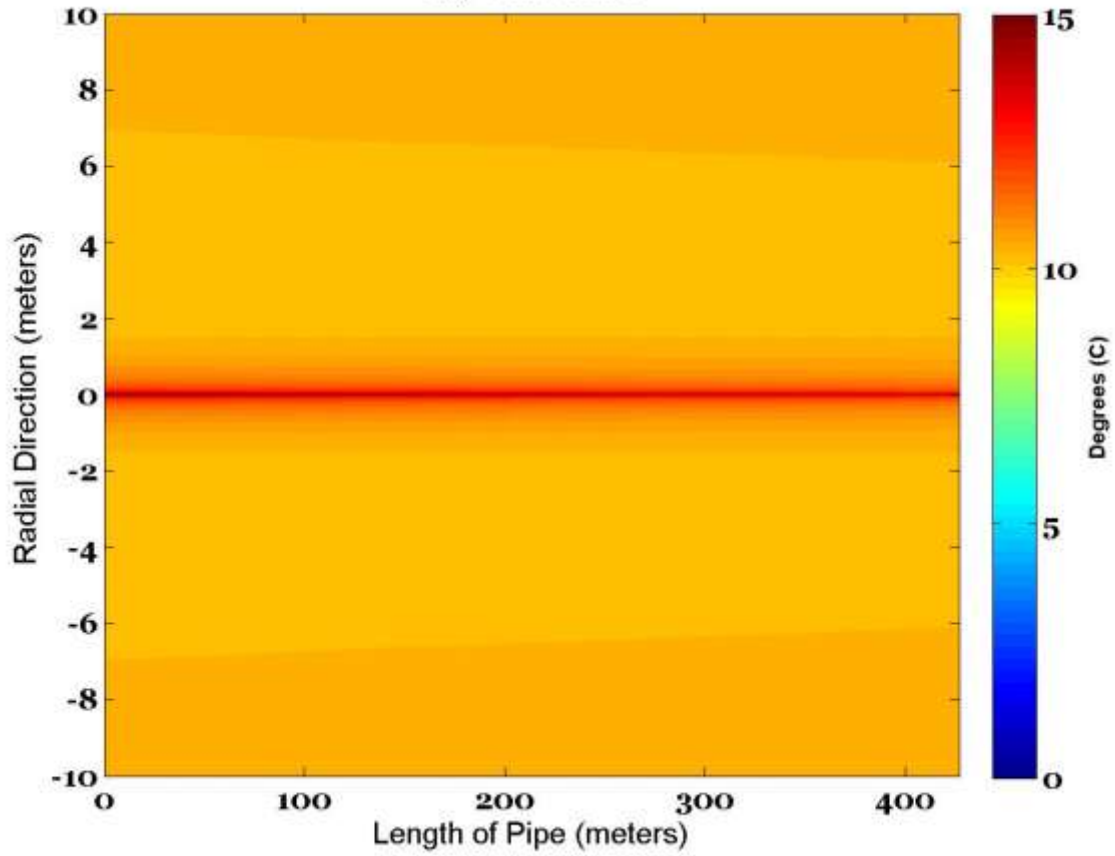


January 15th Year 8

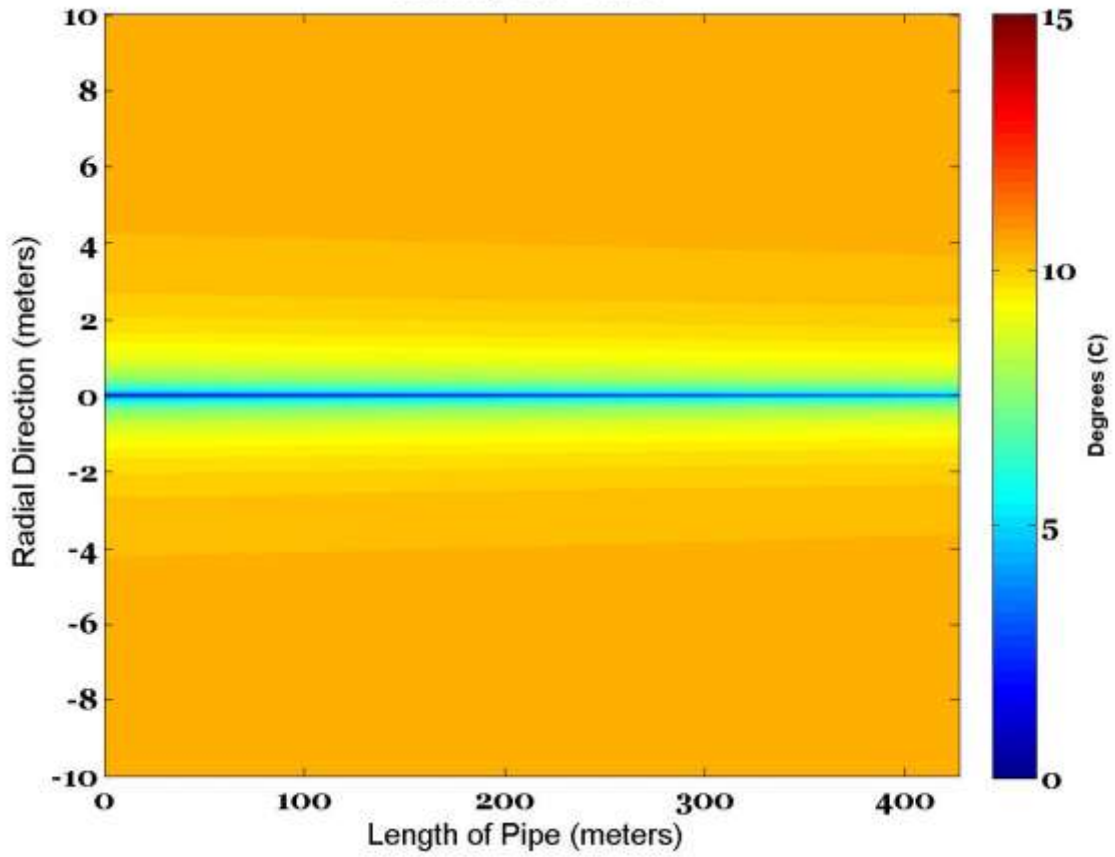




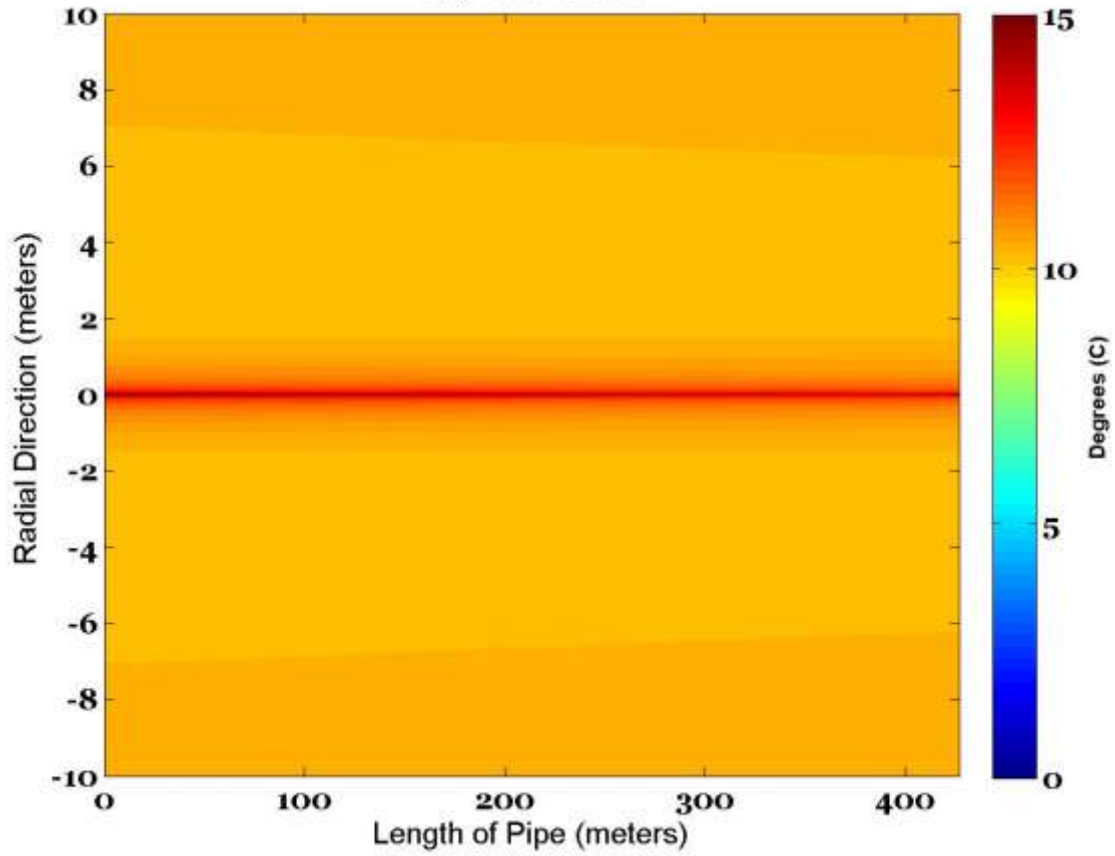
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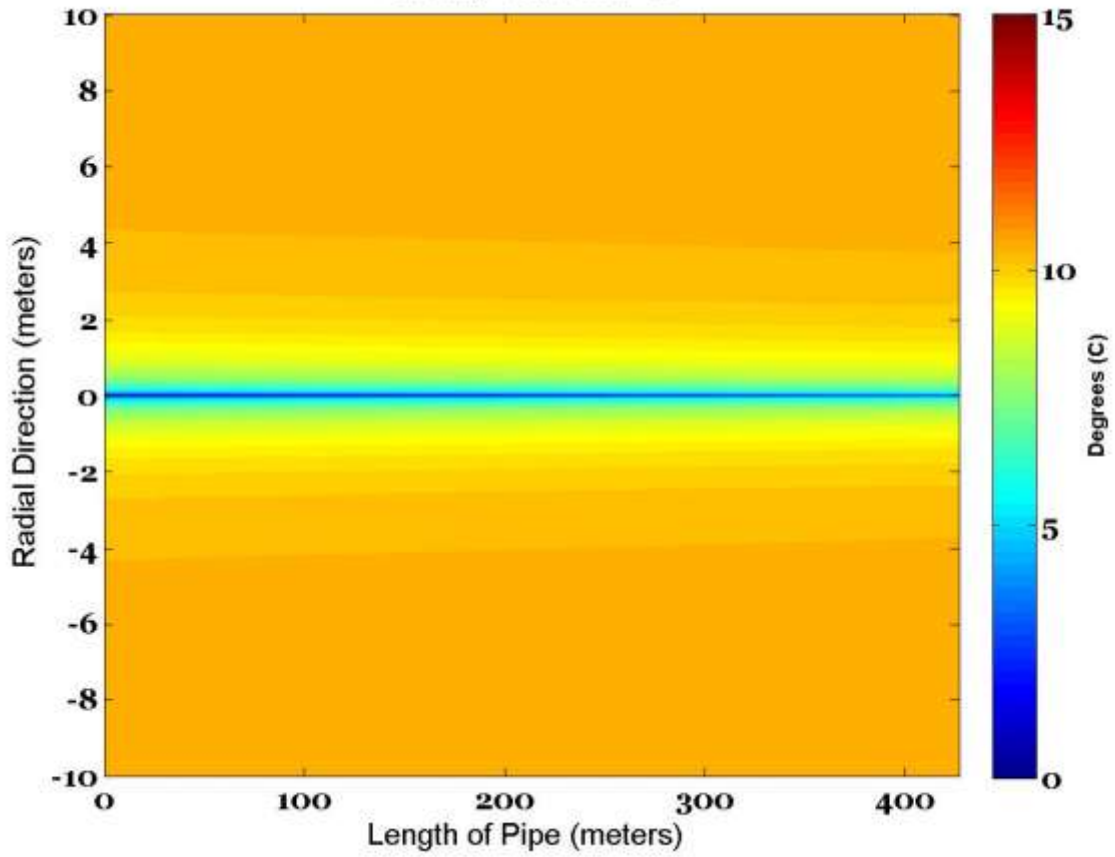
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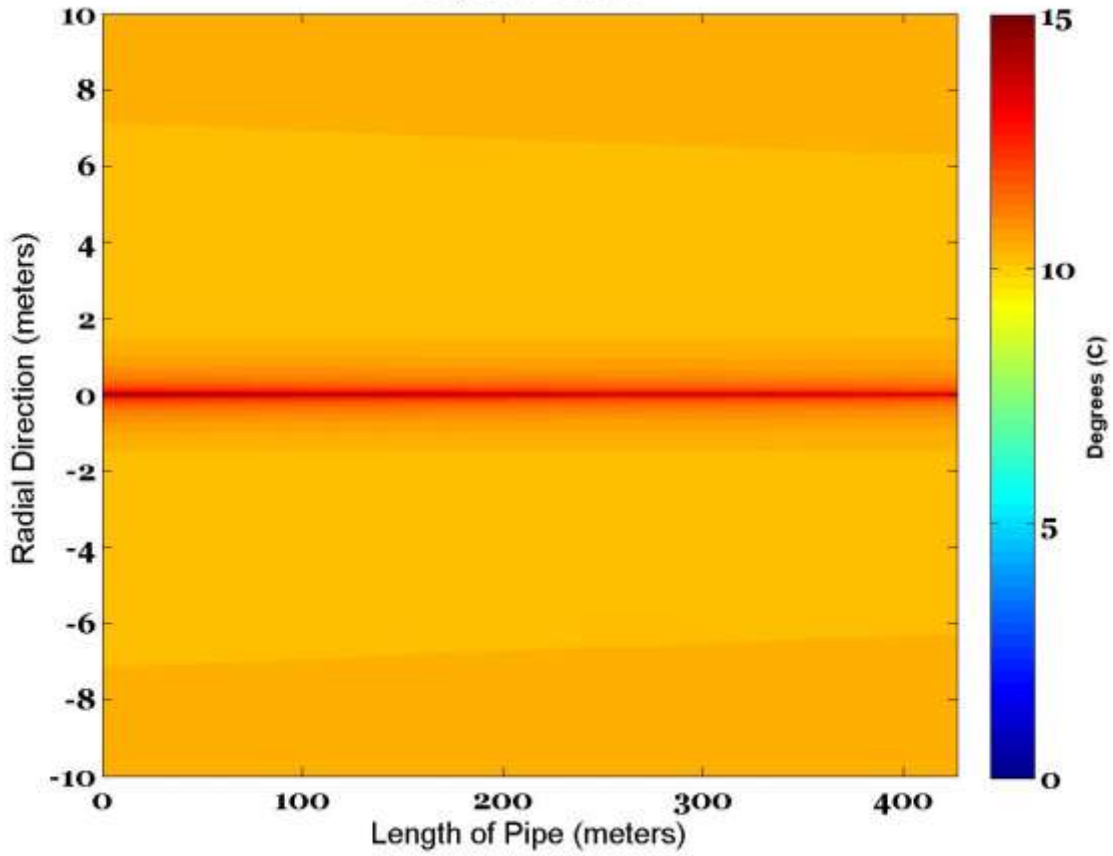
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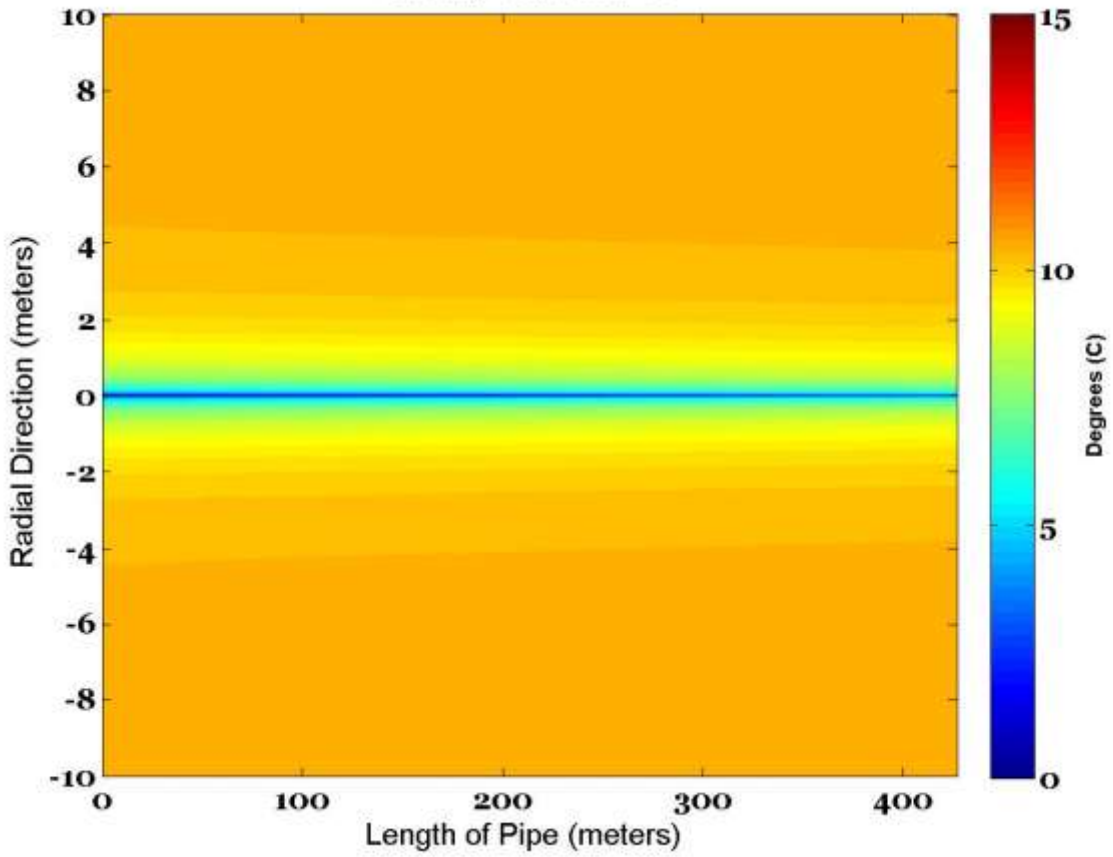
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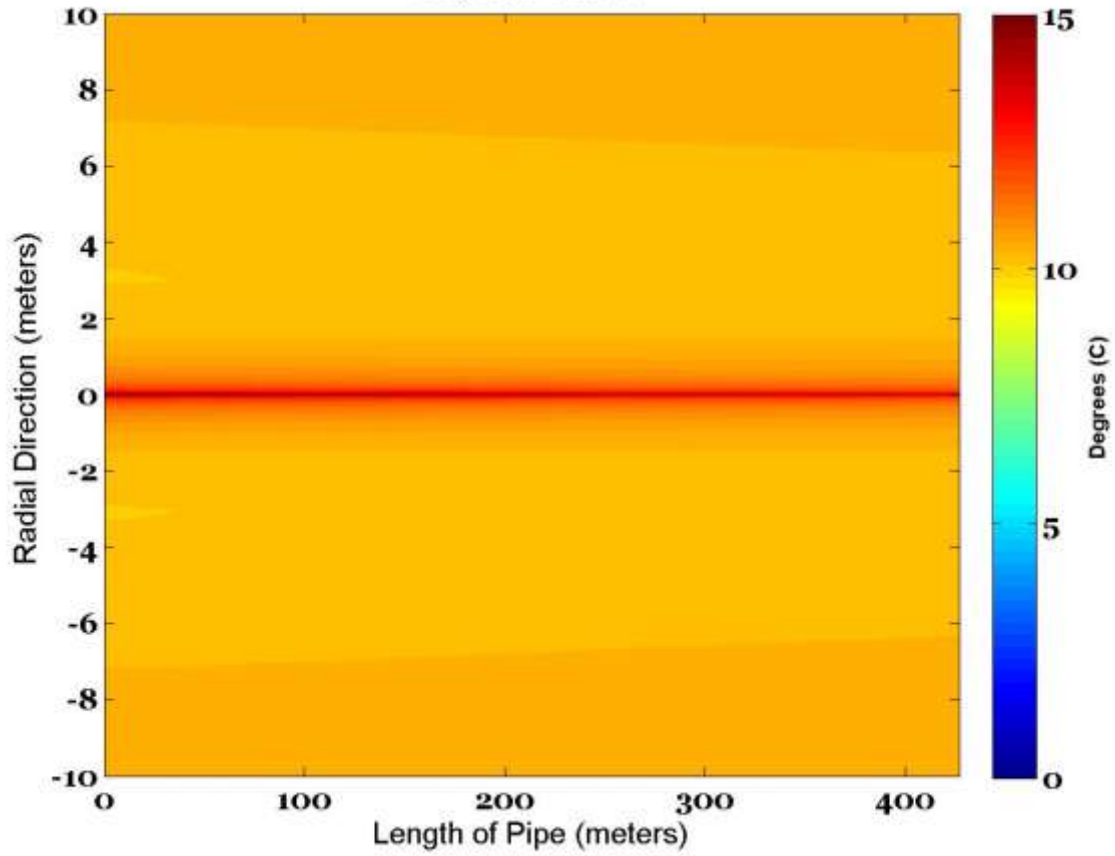
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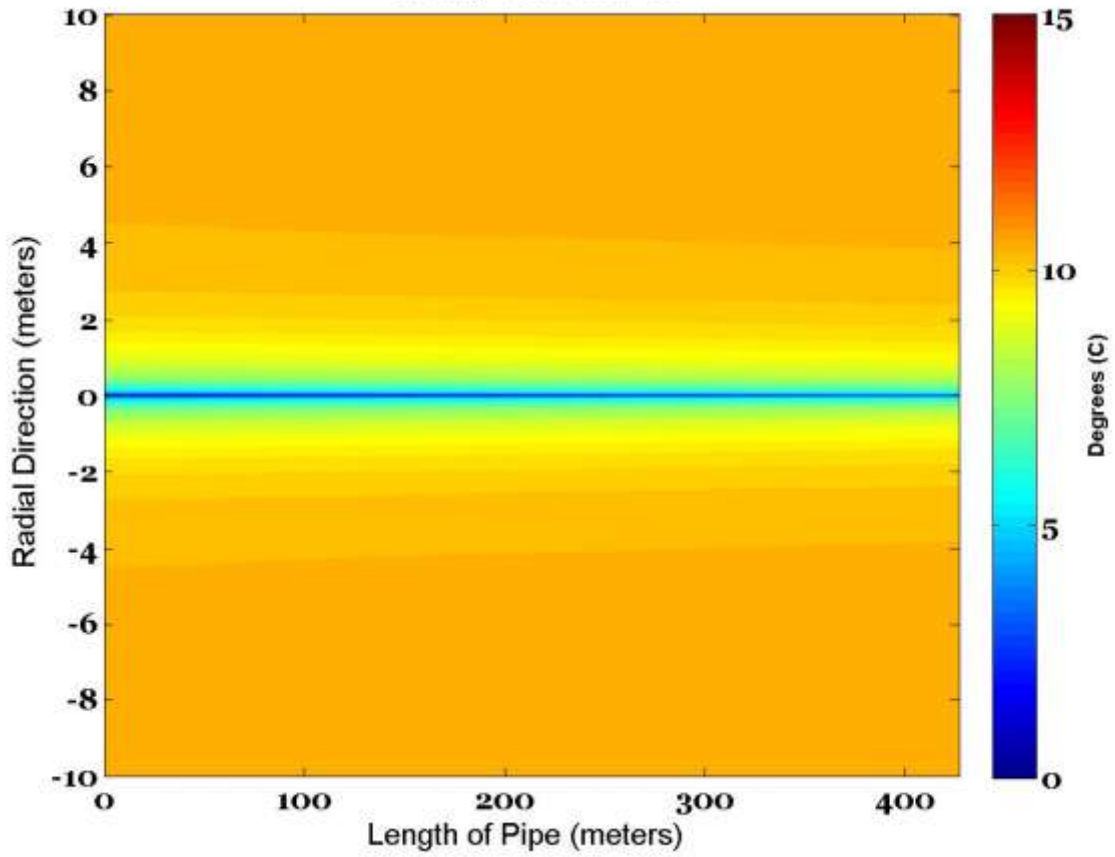
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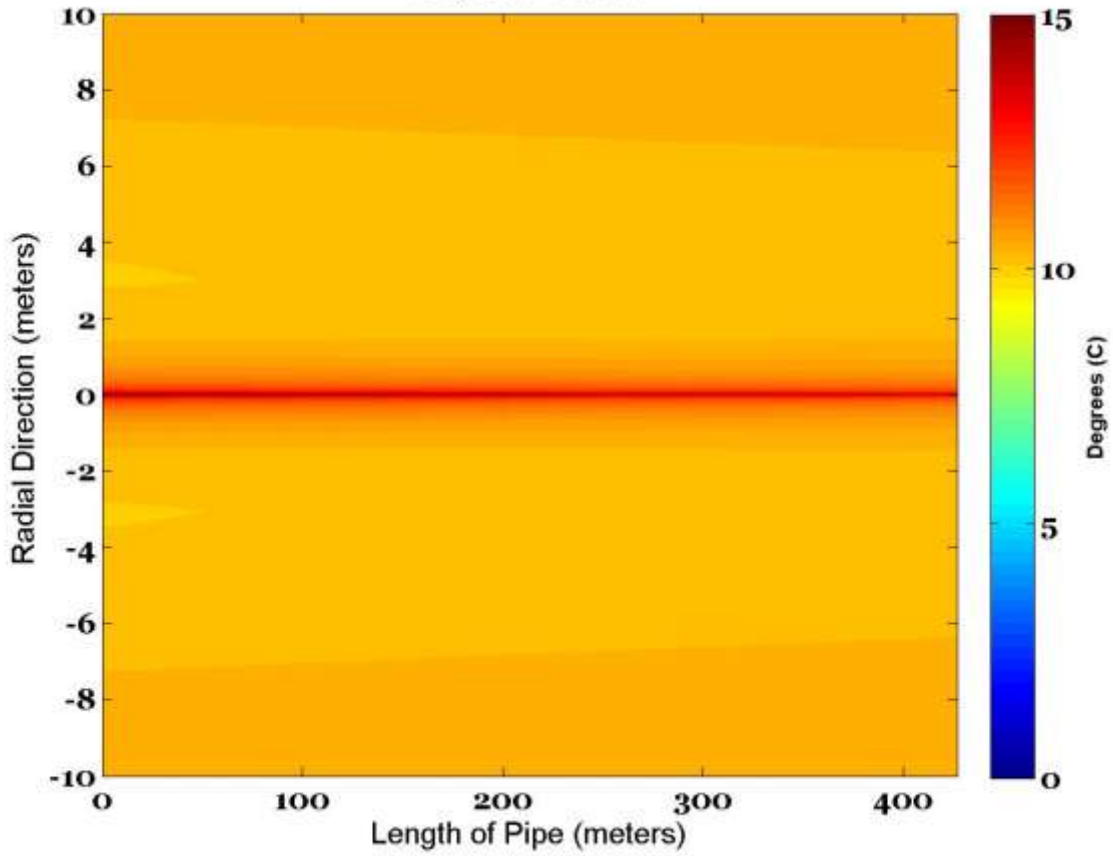
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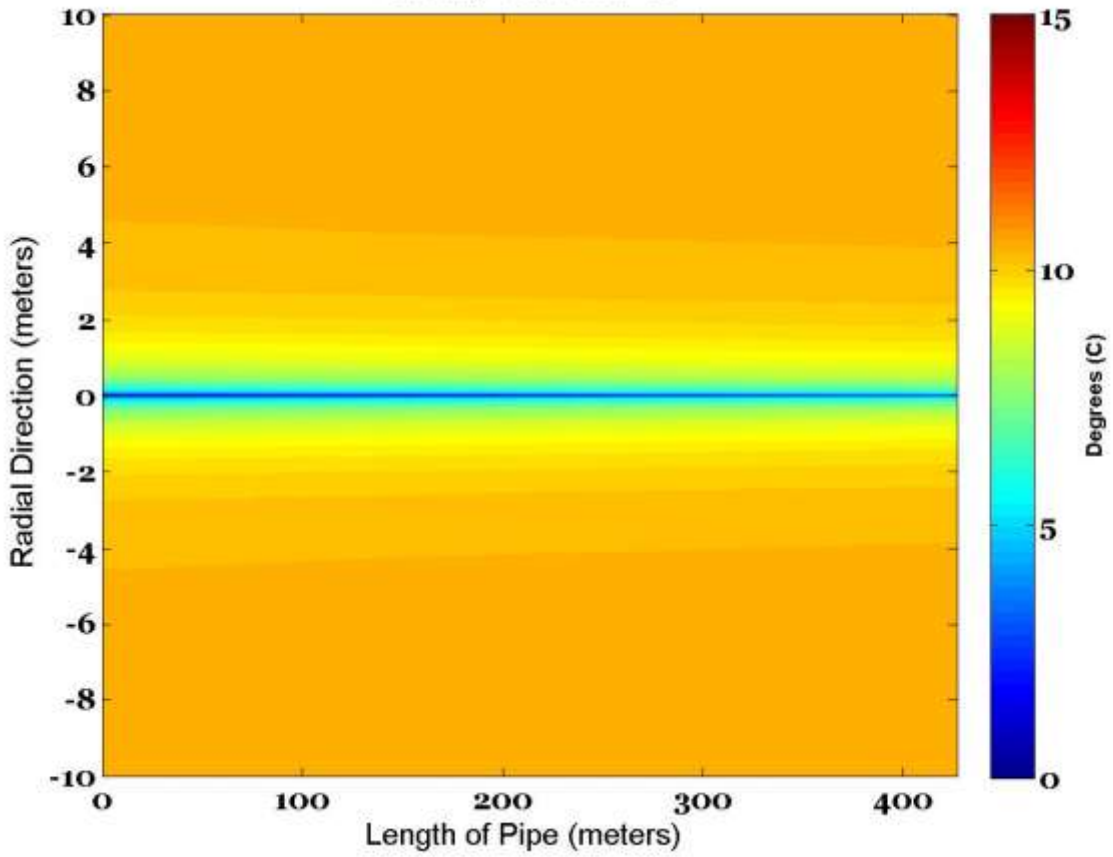
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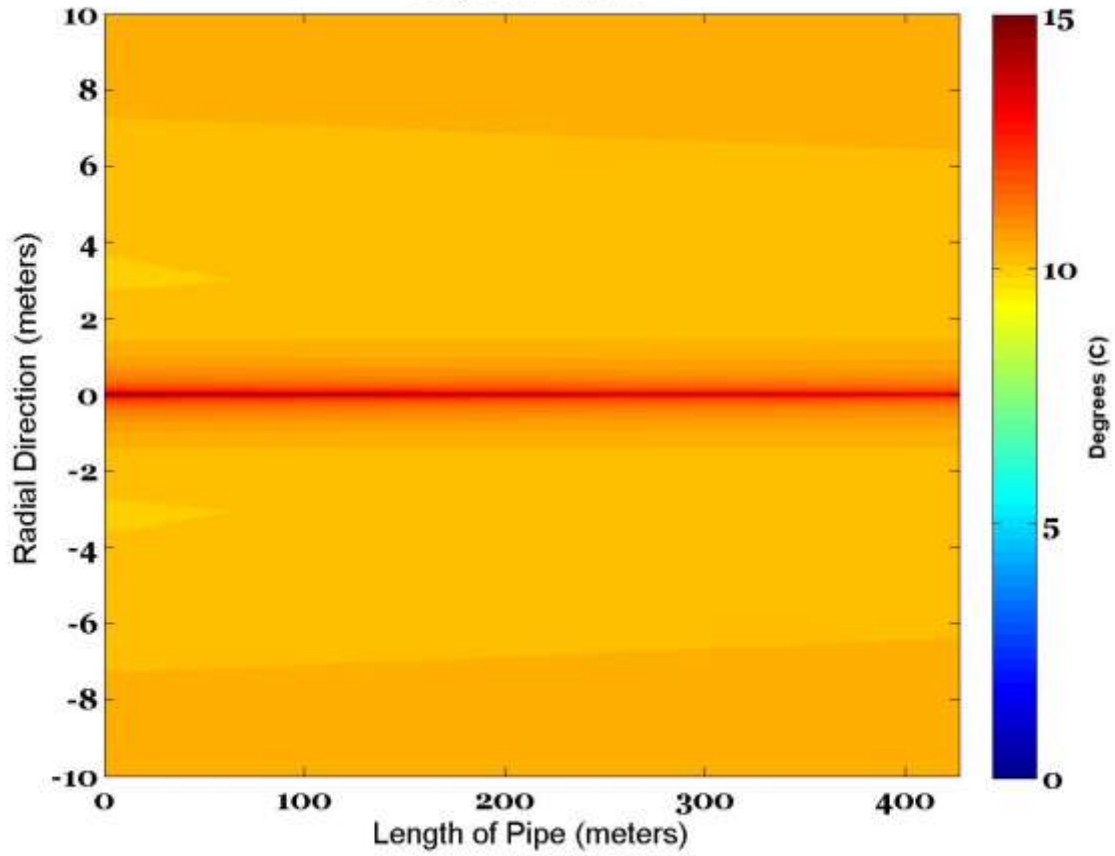
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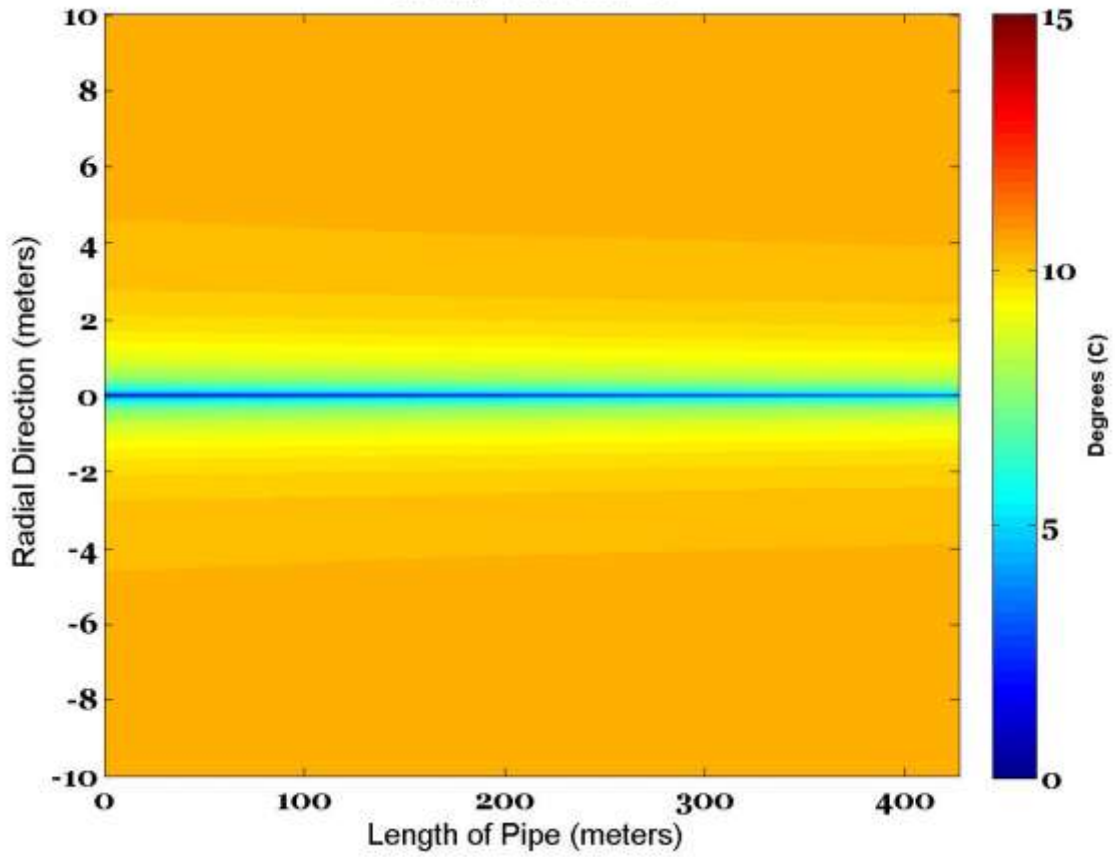
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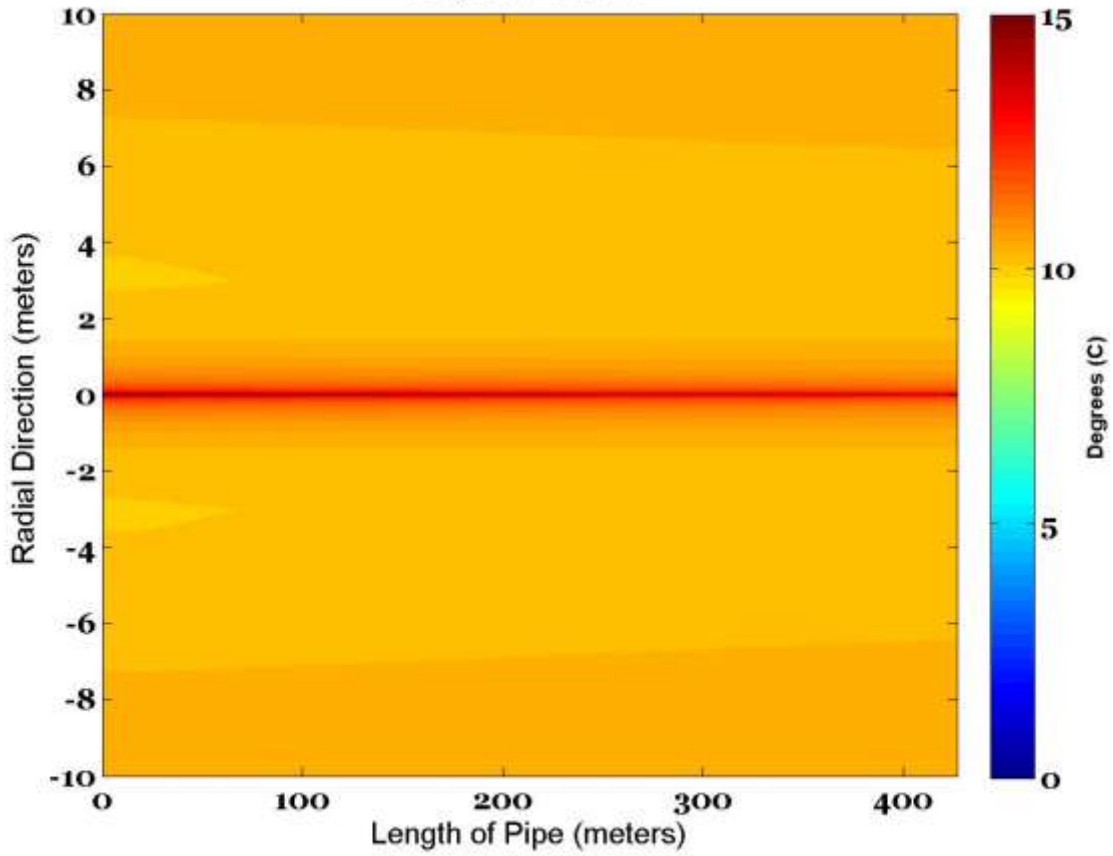
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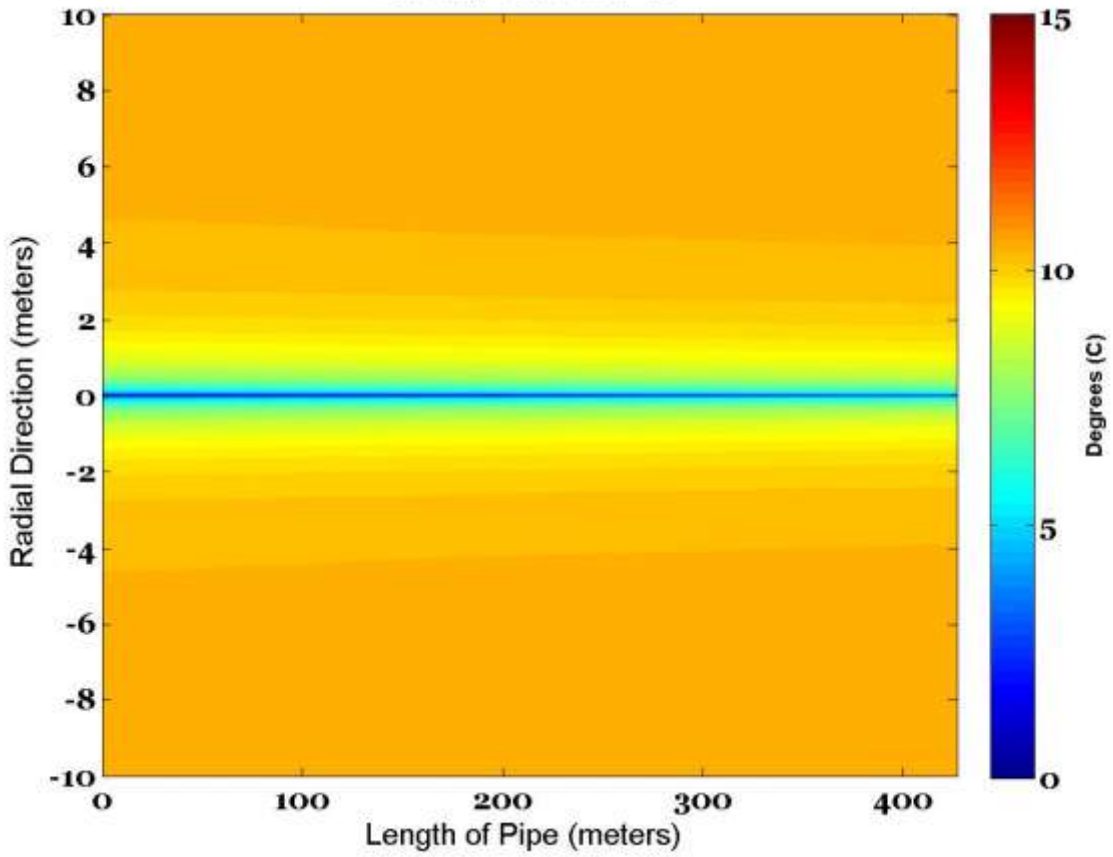
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July 15th Year 14

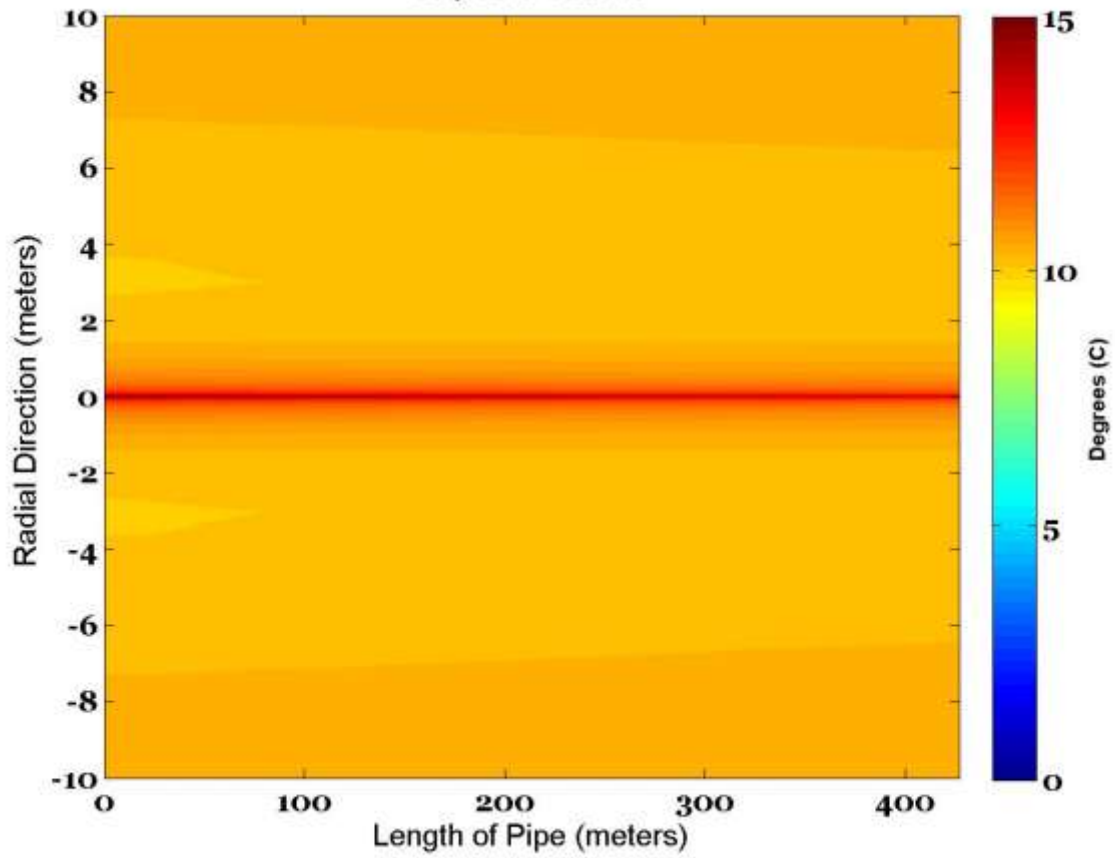


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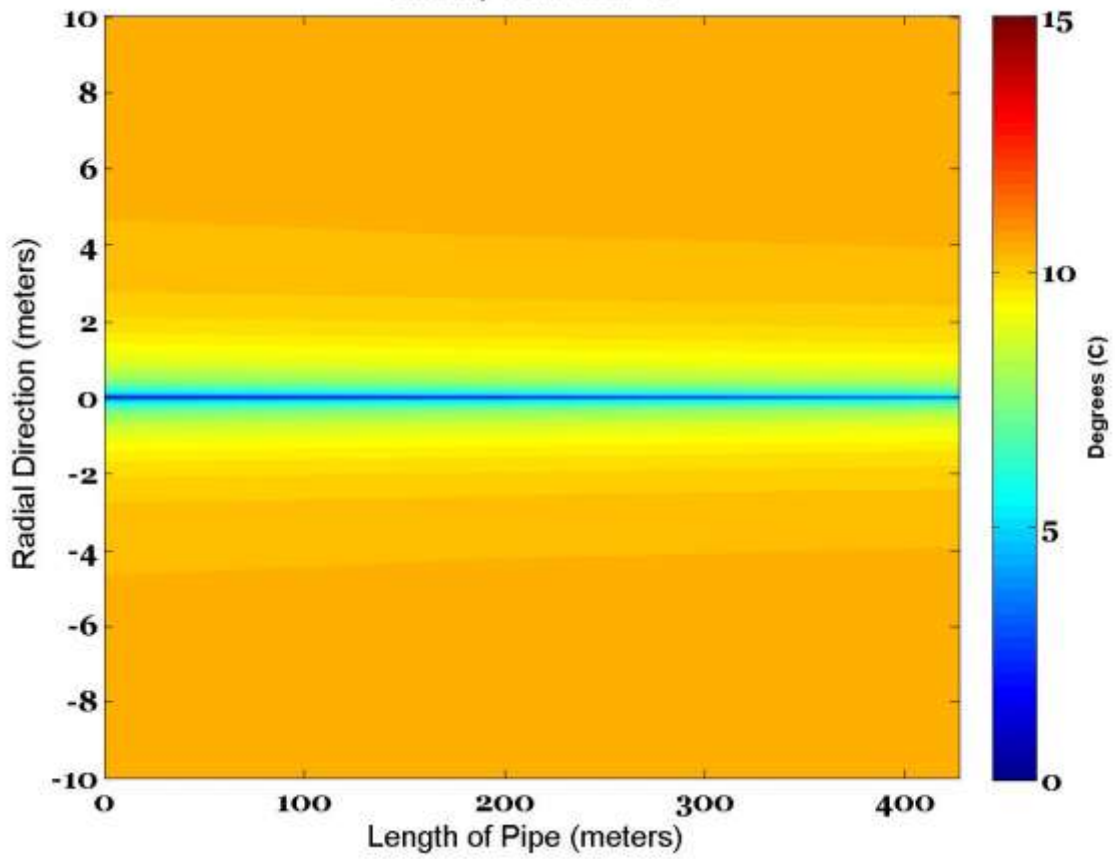




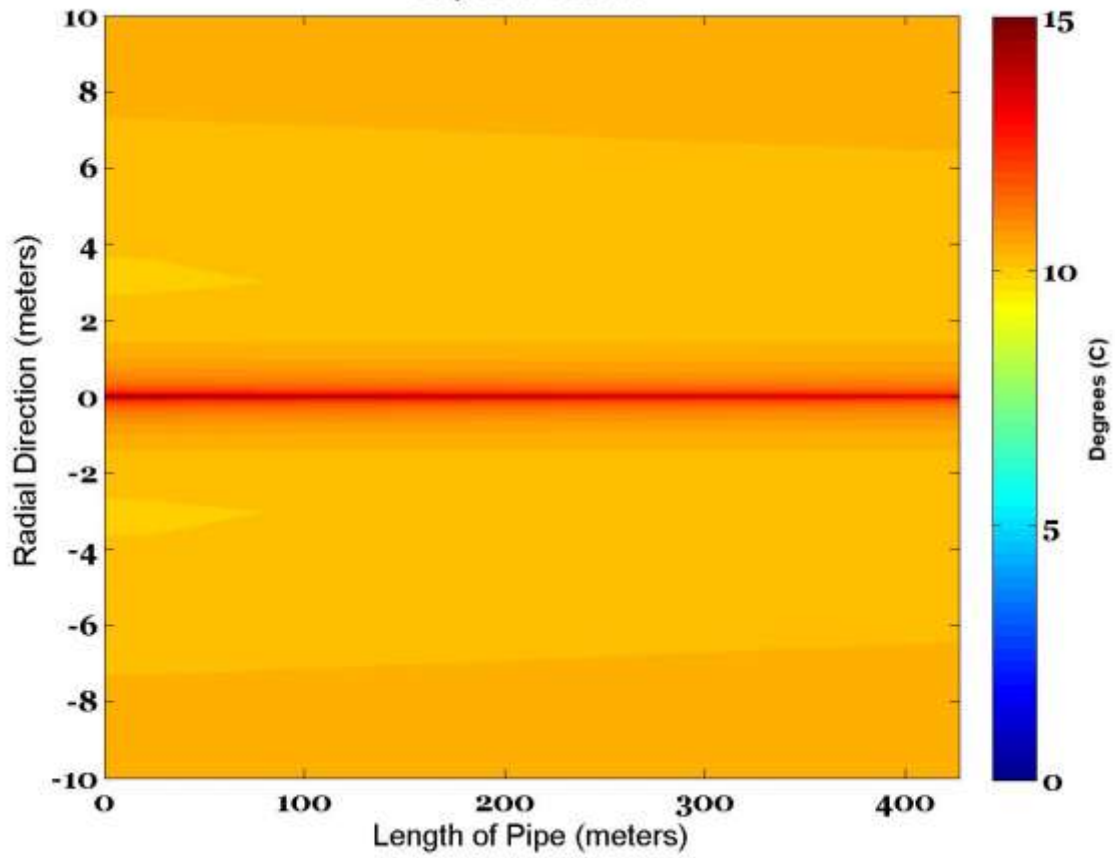
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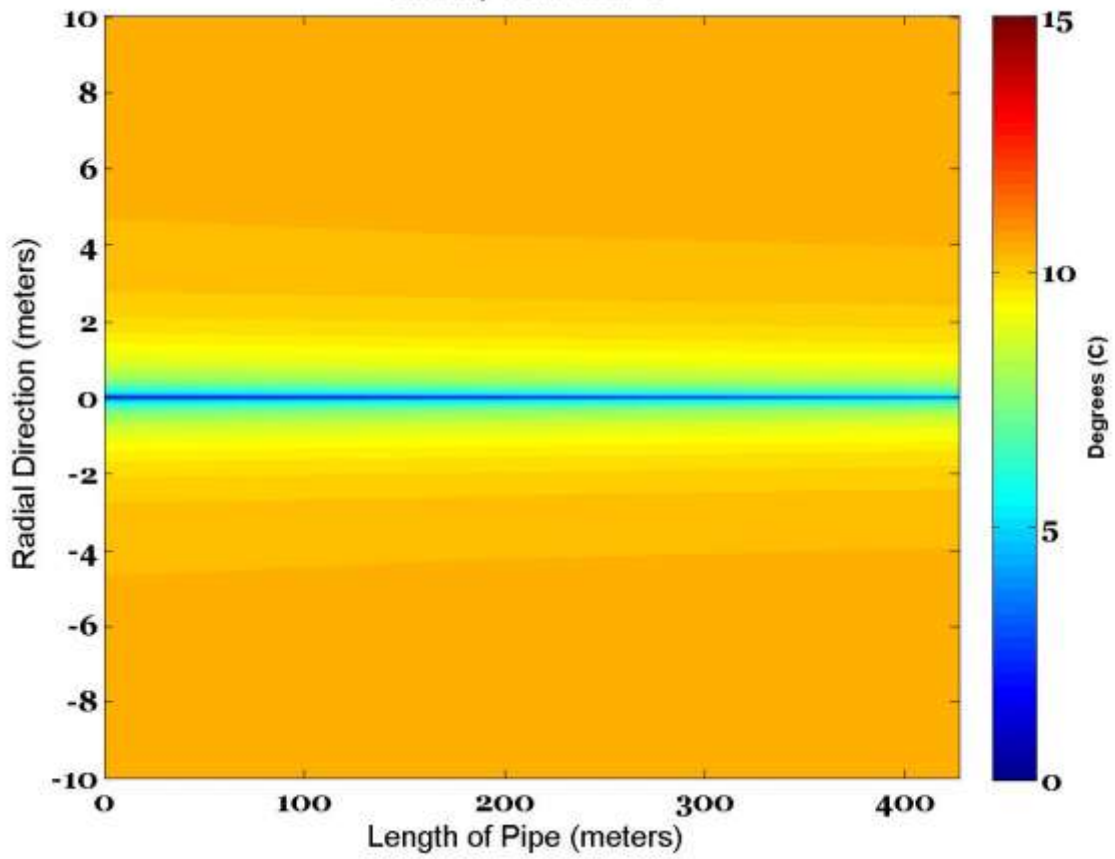
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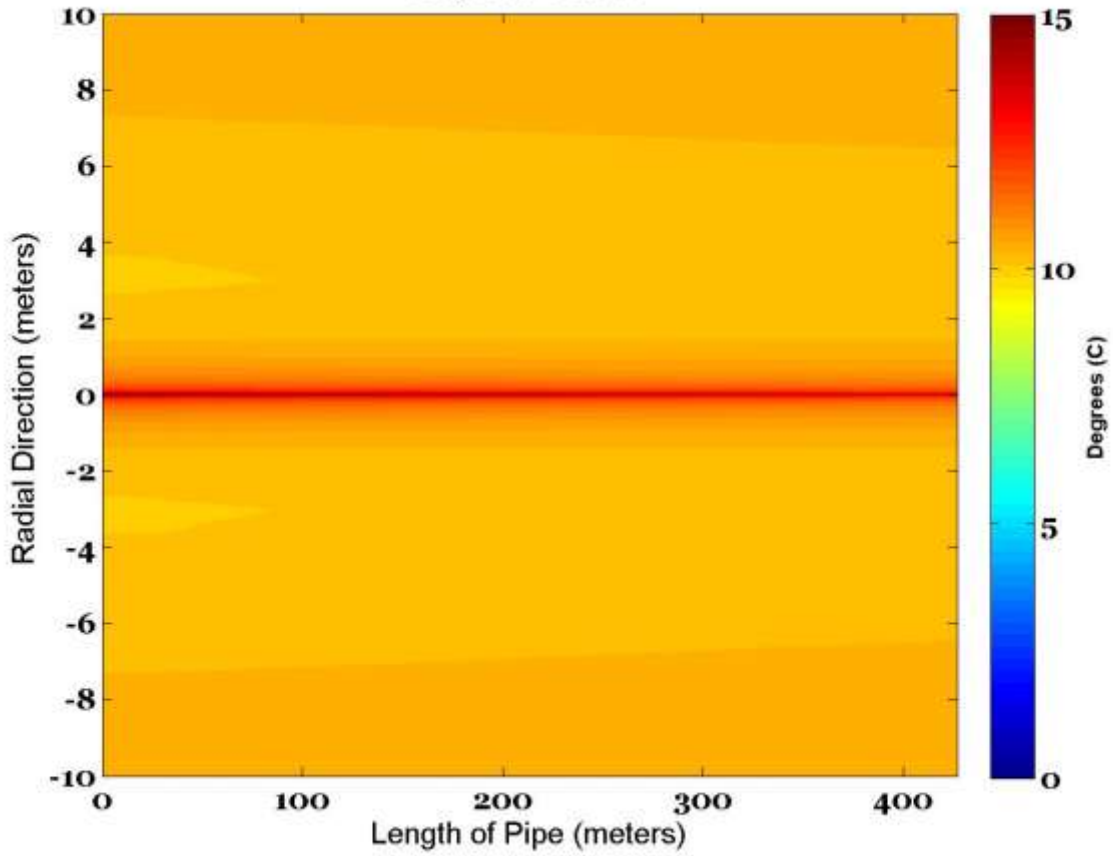
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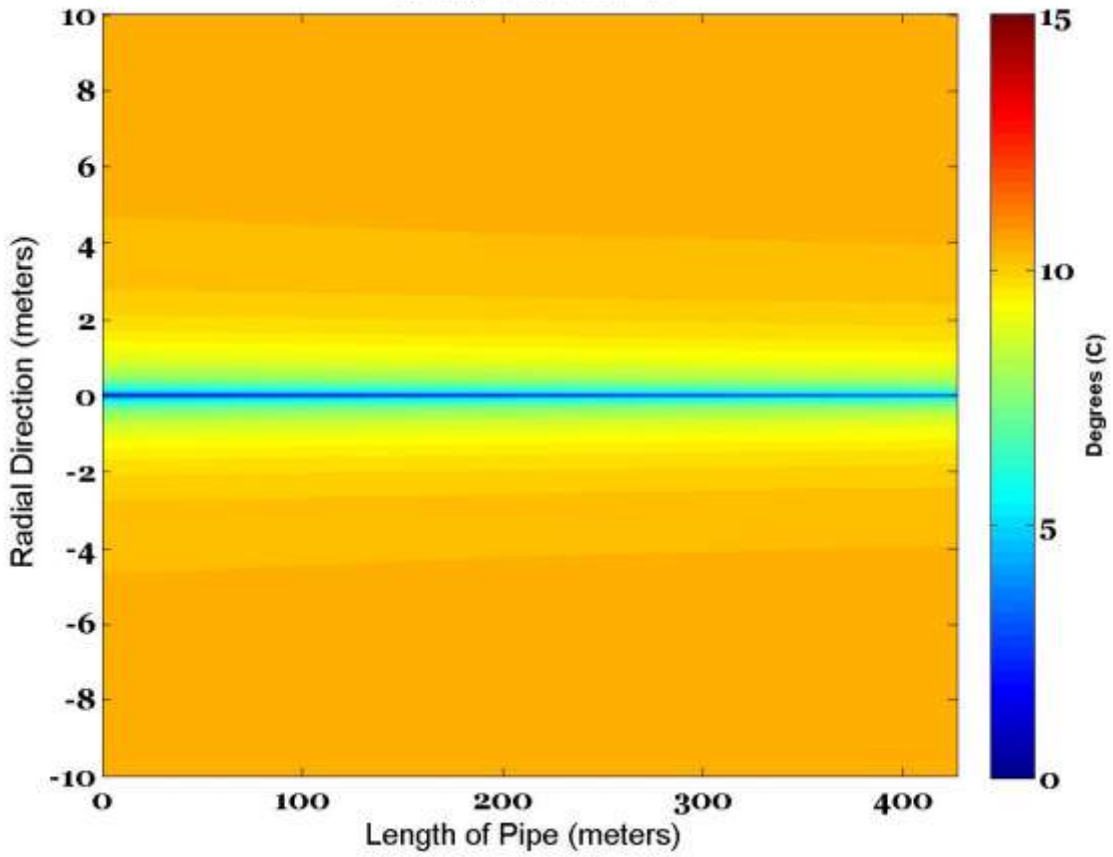
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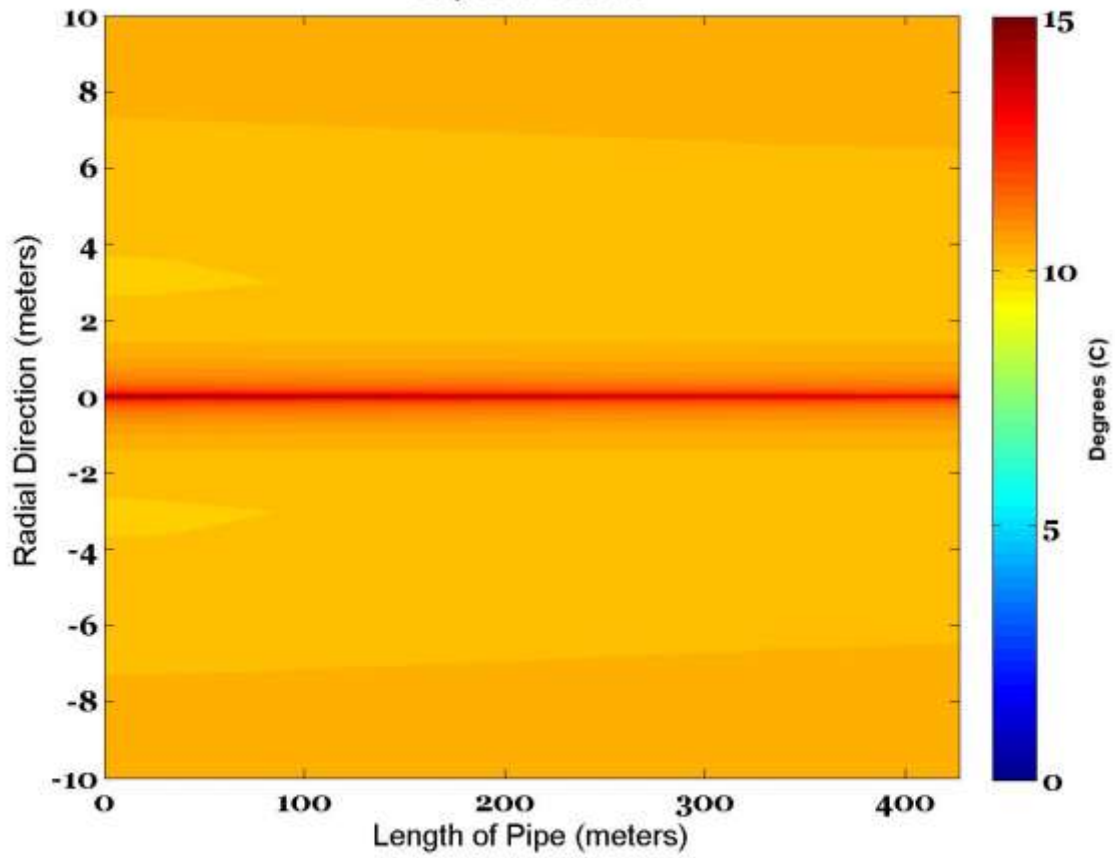
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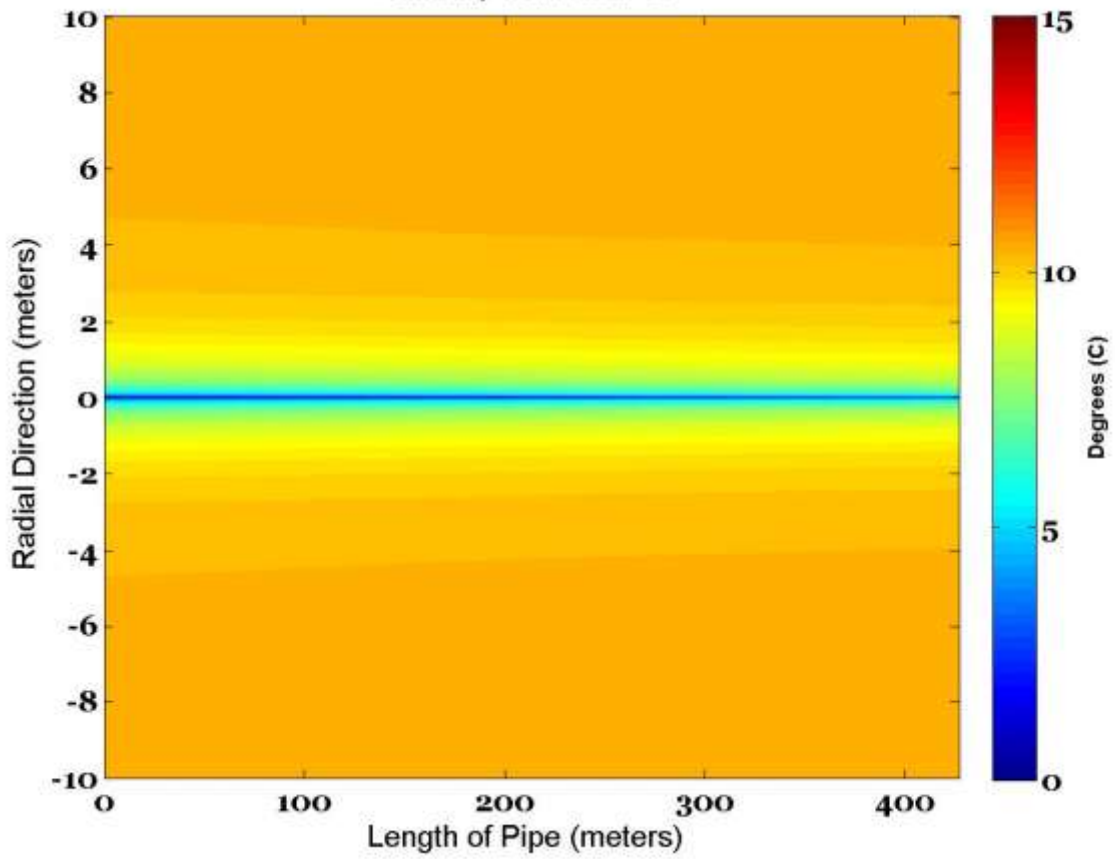
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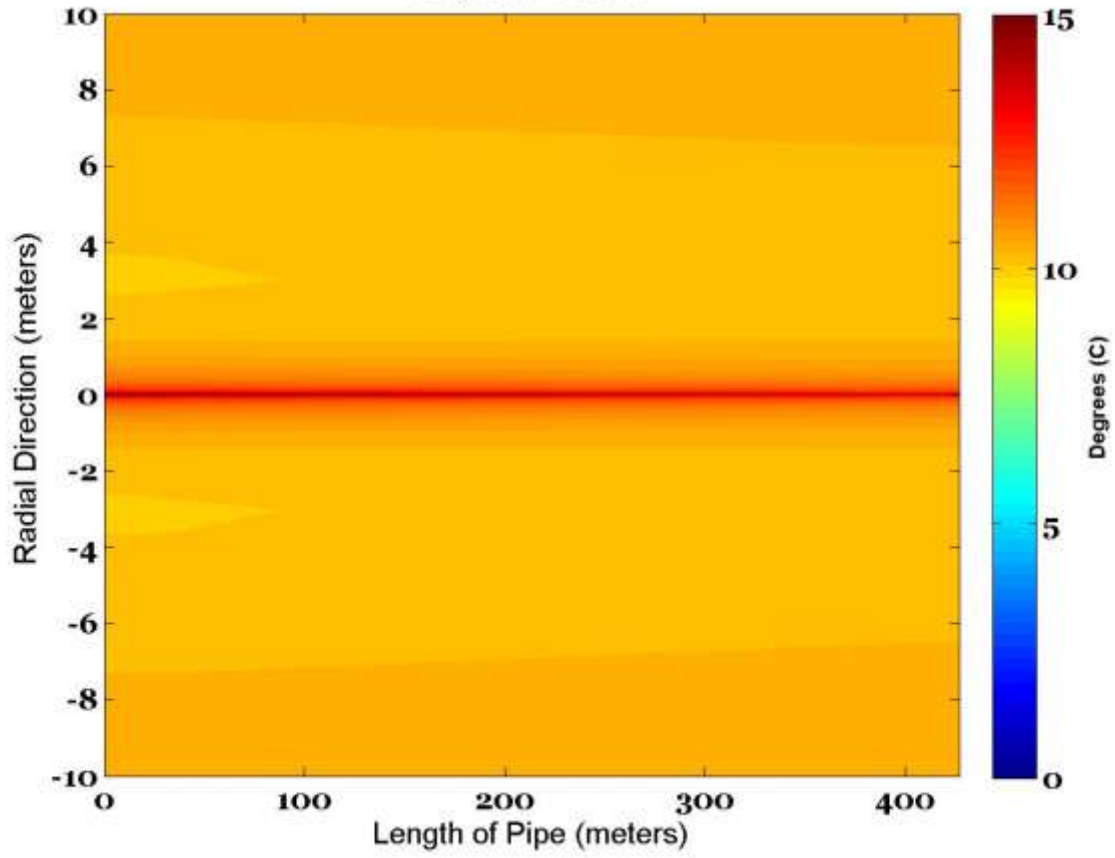
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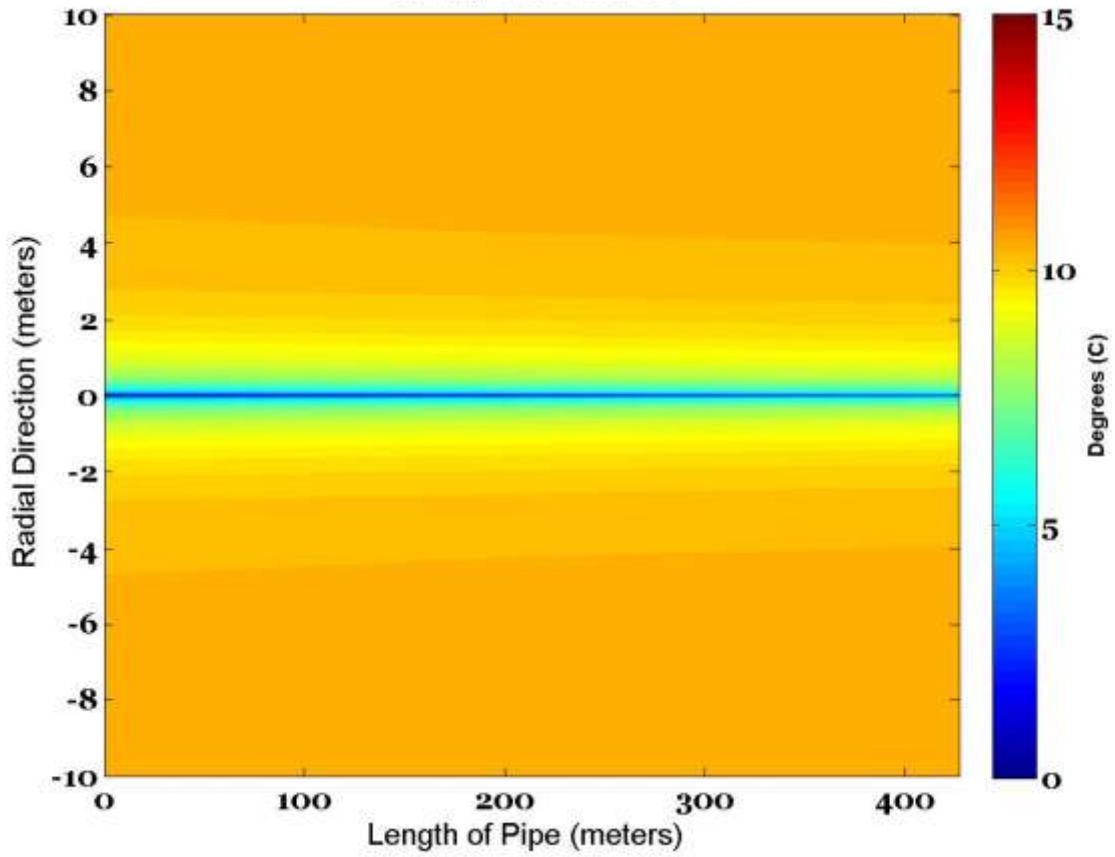
January 15th Year 19



July 15th Year 19



January 15th Year 20



July 15th Year 20

