

**Software Release Notice  
Acquired Software**

1. Software Name: CLIMSIM for WIndows      Software Version: 1.0.1

2. Software Function: Provide rapid means of predicting the thermodynamic properties of the air and heat stress indices along any underground airway.

3. Summary of Actions:

New Software       Update to Existing Software       Software Retirement

4. Software Installation

4a. Computer Platform(s): Windows 2000      4b. Operating System(s): Windows

4c. Programming Language(s): Spreadsheet

4d. Installation Testing:

Passed

Testing Performed On: Griffon

Description of Testing Performed:

Opened the CLIMTEST.CSW file within CLIMSIM and performed example calculations. The test is included in the appendix. *By T. Maxwell (MS)*

4e. Archive Copy:

Enclosed

Not Available, Why:

Installation Performed by: *IMS (P. Seely)*

Date: October, 2001

Remarks: None

5. Software Assessment

Validation Status:

Full Validation

Limited Validation

Date of Validation: May 2005

Not Validated, Explain: Expected to be validated in May 2005.

Software User:

*[Signature]*

Date:

*5-12-2005*

Remarks:

6. Approval

Manager:

*[Signature]*

Date:

*5/14/2005*

Remarks:

7. QA Verification

SRN Number: *359*

*[Signature]*

Date:

*5/18/2005*

Remarks:

# Appendix

Branch	Name	Dry Bulb (°C)	Wet Bulb (°C)	Pressure (kPa)	Quantity (m³/s)	Length (m)	Depth In (m)	Depth Out (m)	Area (m²)	Perimeter (m)	Friction (kg/m²)	Weirness (1/s)	Age In (days)	Age Out (days)	VRT In (°C)	Gas Step (m³/C)	Conductivity (W/m²)	Diff (m²)
1	Intake Shaft	20.00	17.00	100.000	30.00	1000	0	1000	7.06	9.42	0.0060	0.25	730	365	35.0	66	4.000	
2	1000 Level	28.42	23.10	111.941	30.00	2000	1000	1000	9.00	12.00	0.0120	0.30	365	250	50.0	66	4.000	
3	Return Slope	29.59	27.76	111.556	30.00	4000	1000	0	12.00	14.00	0.0100	0.35	250	30	50.0	66	4.000	

Figure 1 Example of CLIMSIM Input Window

Row	Distance (m)	Dry Bulb (°C)	Wet Bulb (°C)	Pressure (kPa)	Moisture (kg/m³)	Density (kg/m³)	Humidity (%)	Enthalpy (kJ/kg)	Signal Heat (kJ/kg)	Dry Wet (°C)	VRT (°C)	WST (°C)	ET (°C)	WGBT (°C)	Sinks Q (kW)	Sinks QS (kW)	HTC (W/m²·°C)
1	0	29.59	27.76	111.556	20.69	1.268	86.67	82.61	80.21	30.8	50.0	33.58	23.69	28.31	0.00	0.00	16.154
2	400	29.41	28.10	110.288	21.62	1.254	90.34	84.81	82.27	30.6	48.5	33.64	23.71	28.49	84.69	30.40	16.399
3	800	29.73	28.48	109.034	22.43	1.238	90.88	87.21	84.54	30.8	47.0	33.84	24.19	28.85	73.49	34.69	16.686
4	1200	30.02	28.82	107.796	23.22	1.222	91.34	89.52	86.72	31.0	45.5	34.09	24.63	29.18	71.25	28.72	16.973
5	1600	30.21	29.11	106.572	23.96	1.207	92.06	91.62	88.70	31.1	43.9	34.28	24.96	29.44	67.18	24.95	17.252
6	2000	30.34	29.34	105.363	24.64	1.192	92.85	93.50	90.48	31.1	42.4	34.42	25.19	29.64	62.17	22.38	17.526
7	2400	30.41	29.53	104.167	25.27	1.178	93.64	95.16	92.06	31.1	40.9	34.52	25.35	29.79	56.83	20.36	17.795
8	2800	34.13	31.60	102.998	28.23	1.149	93.49	106.70	102.97	34.5	39.4	36.51	29.62	32.36	126.70	-75.88	18.520
9	3200	32.38	31.46	101.840	29.08	1.142	93.65	107.02	103.19	32.8	37.9	36.15	28.37	31.74	76.70	-31.40	18.637
10	3600	31.63	31.33	100.690	29.48	1.131	97.86	107.23	103.37	32.0	36.4	35.91	27.67	31.42	35.64	7.93	18.626
11	4000	31.22	31.18	99.550	29.88	1.120	99.70	107.31	103.44	31.6	34.9	35.71	27.18	31.19	18.21	21.23	19.041

12 Linear heat source starts at 500 m, length = 2000 m, sensible heat = 100.00 MW, latent heat = 0.00 kW  
 13 Diesel heat source at 2500 m, sensible heat = 254.35 kW, latent heat = 141.85 kW  
 14 Sinks heat totals: sensible heat = 83.38 MW, latent heat = 672.85 kW  
 15 Other heat totals: sensible heat = 354.35 kW, latent heat = 141.85 kW  
 16 Metabolic rate = 145 W/m², Skin temperature limit value = 35.46 °C

Figure 2 Example of CLIMSIM Output Window