APPENDIX H: Thornthwaite Method For Calculating Evapotranspiration

Thornthwaite method for determining potential evapotranspiration

A monthly index is obtained from the equation:

$$i = (t/5)^{1.514}$$

Summation of the 12 monthly values gives an appropriate heat index, I.

To calculate a, the expression is:

$$a = 0.0000006751^3 - 0.00007711^2 + 0.017921 + 0.49239$$

From these relations, a general equation for potential evapotranspiration is obtained. It is:

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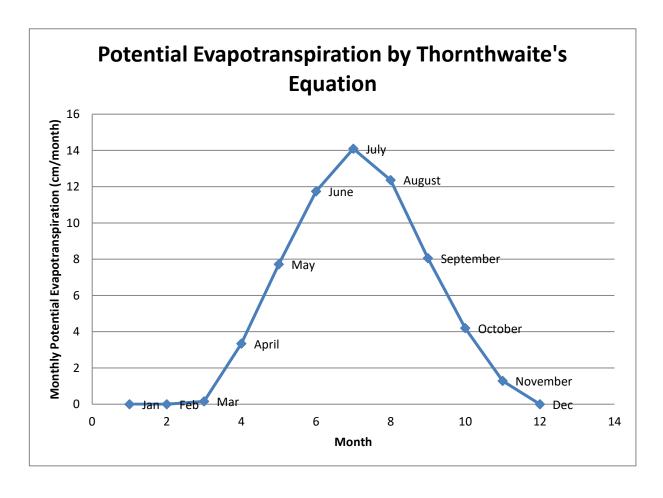
$$e = 1.6 \left(\frac{10t}{I}\right)^a$$

in which a has the value given in the equation above.

APPENDIX H: Thornthwaite Method For Calculating Evapotranspiration

Hamilton RB	G Climate Data				
Daily Average Temp (C°)		Monthly index (i)	Potential Evapotranspiration (cm)	Adjusted Potential Evaportranspiration (cm)	
Jan	-4.7			0	
Feb	-3.9			0	
Mar	0.5	0.030619634	0.141489475	0.158468212	
April	7.1	1.70045269	2.980613536	3.33828716	
May	13.3	4.398157705	6.129446549	7.723102652	
June	18.9	7.487254318	9.177357679	11.74701783	
July	22	9.422960101	10.92657209	14.095278	
August	20.9	8.718883818	10.30139518	12.36167422	
September	16.3	5.984273673	7.74263507	8.052340473	
October	10	2.856007959	4.417316126	4.196450319	
November	4.1	0.740481431	1.586283476	1.284889615	
Dec	-1.4			0	
	HEAT INDEX (I) =	41.3084717		62.96 cm/year	
				629.58 mm/year	

a = 1.148654797



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