HUMAN THERMAL CLIMATES OF NEW ZEALAND

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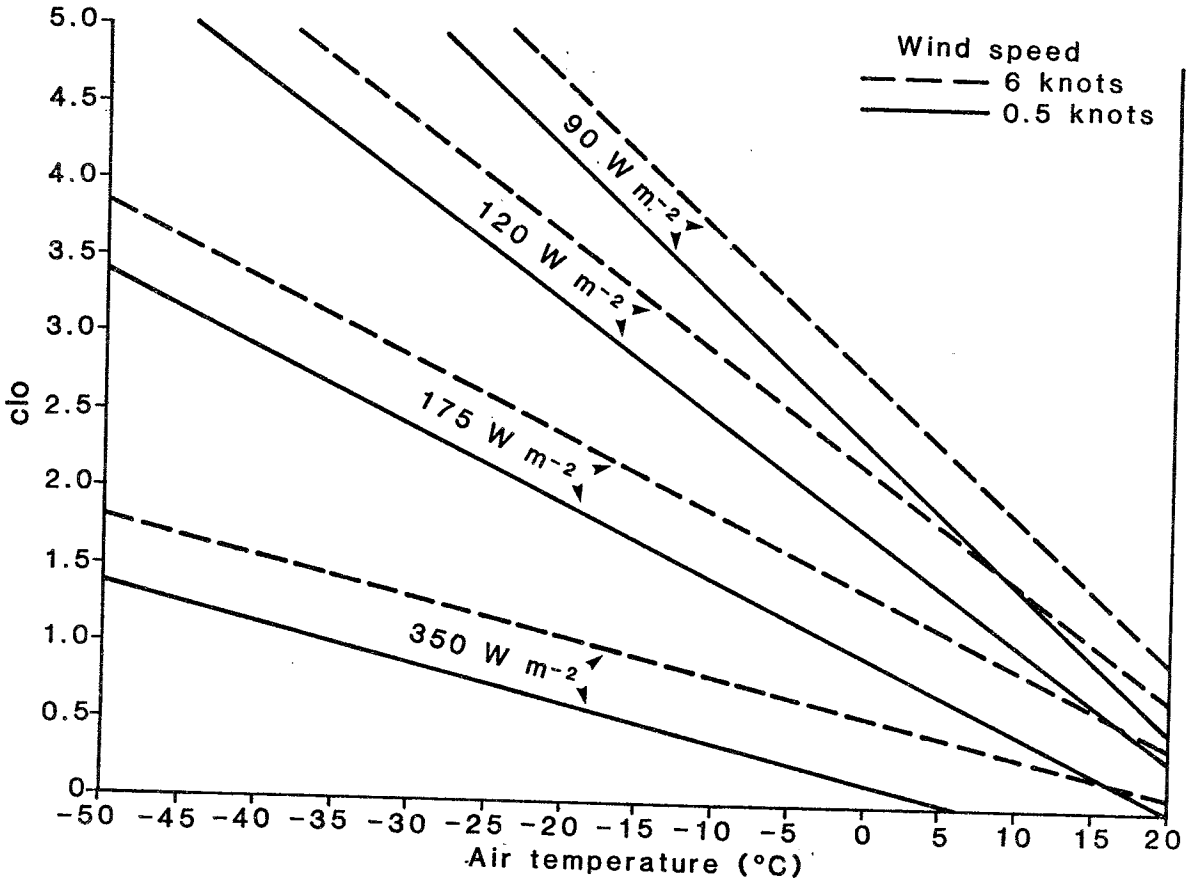

Clothing requirements of various air temperatures and wind speeds for four metabolic rates.

Expression and interpretation of the relative warmth or coolness of climates experienced by people depends both on atmospheric environmental conditions as well as factors related to human beings themselves. It is well known that air temperature alone is not always a reliable or suitable indicator of the thermal significance of atmospheric conditions. At any given air temperature the thermal condition experienced will vary depending on the relative and often offsetting effects of wind, humidity, solar radiation and cloud cover, and thermal radiation from the surrounding physical environment. The thermal significance of all these things in turn depends of factors related to the body such as the level of physical activity, amount and colour of clothing worn and posture. There are also other important considerations such as whether the person is in the direct sunshine or in the shade.

An expression of all these factors would be overly complex unless the combined effect is presented as a single parameter or index. Of course, to be useful, the index must also be easy to interpret as well as be a faithful reflection of real processes that are taking place are affecting the thermal state of the person.

There have been several attempts to develop thermal indices, motivated by the wide range of possible applications of the results. Creating suitable thermal conditions for human beings indoors has been the primary purpose of the heating and ventilating industry. Thermal assessment of climates has also been the subject of interest in the context of human health and disease, as well as the physical and mental well-being of people generally. Research is usually directed towards a practical end that can be either diagnostic, therapeutic or prognostic.

Diagnostic applications aim at determining the degree or intensity of thermal environmental stress and resulting strain on the body. Therapeutic or curative applications aim to remedy a situation known to be detrimental to health. Prognostic applications set out to predict or determine whether atmospheric conditions which are expected will be acceptable to those exposed to them. Thermal assessment of this sort has also been applied to schemes that provide indices suitable for the classification of climate in human terms, or for evaluation of the amenity component of climate for tourism-recreation decision making (Terjung, 1966, 1968; Green, 1967; Davis, 1968; Paul, 1972; Crowe, McKay and Baker, 1973, 1977; Auliciems, de Freitas and Hare, 1973; Auliciems and de Freitas, 1979; de Freitas, 1985).

AIM AND APPROACH

The aim of this work is to identify and describe thermal climates of New Zealand using two energy budget schemes that incorporate atmospheric, human physiological and behavioural variables. Output is in the form of an integrated, unitary measure of thermal stress and description of net thermal state of the body that is easy to interpret. Detailed data are presented that describe the temporal and spatial variation of cold stress and heat stress or degree of thermal comfort in New Zealand.

The recent trends in the development of thermal climatic indices reflect a move away from statistical treatment of meteorological data and from conventional methods of assessment that presented static, single variable descriptions of climate. The move has been towards the use of dynamic body-atmosphere heat budget models that integrate the effects of interaction between processes of the body, features of the body and the

multivariate condition of the atmospheric environment. Using this approach, a process-response model of the body-environment system is generated and flows of heat are quantified and then integrated using both theoretically and empirically derived and tested relationships.

Body-environment heat transfer may be expressed by an energy balance relationship in the form:

$$M + R + L + E + C + K = S_1 \quad (1)$$

Description of symbols and units used in all formulae are given in Table 1. Steady state conditions exist when the residual S_1 term is zero. Alternatively, the S_1 term may be expressed as a net heat surplus or deficit and used as a measure of the energy loss or gain required for steady state conditions under any given set of body-environment thermal conditions. Conditions during which thermoregulatory response mechanisms such as change in the rate of blood flow from the core of the body to the skin, shivering and sweating are not required for equilibrium will correspond to a particular thermal body condition indicative of minimum environmental stress. This point is also likely one of minimum physiological strain, and possibly maximum comfort.

The residual term S_1 is a measure of body-atmosphere thermal imbalance. This term may be used in several ways depending upon the nature of the index and application required. One approach is to deal with S_1 in terms of the action required to offset the thermal imbalance. Apart from involuntary physiological processes of thermoregulation, human beings are able to respond to thermally demanding environments in four ways:

1) move away from them; 2) balance excessive or insufficient rates of heat transfer by altering the body's metabolic rate by changing the type of activity thereby decreasing or increasing bodily heat production; 3) create a suitable microclimate by using external energy; 4) arrange an insulating layer of clothing between the body and the ambient air. All of these may be used as thermal indices of climate. They are particularly attractive since the indices actually suggest the nature and, in the case of the last three, the precise degree or amount of 'thermal adjustment' to bring about neutrality or desired level of thermal equilibrium.

Clearly the nature and degree of behavioural response are directly related to the magnitude of thermal stimulus. The fourth behavioural response, namely, amount of clothing required to offset thermal imbalance is a particularly attractive option for use as an index of cold climatic conditions. Adaptation by insulating against changes enables the least amount of interruption to activity within the selected environment. Clothing required for equilibrium is also an objective index of coolness or cold. Also as a climatic index it is simple and can be easily understood and interpreted. Furthermore, Auliciems, de Freitas and Hare (1973) and Auliciems and de Freitas (1976) have shown that body-atmosphere heat exchange processes are sufficiently well understood to permit quantitative expression of the clothing insulation required for maintenance of thermal equilibrium.

Another approach is to express the S_1 term specifically in calorific terms as a measure of the body-atmosphere heat imbalance. However, this output energy value must be interpreted in a way that is simple and easily understood. Verbal interpretation of thermal conditions is believed to offer a conceptual integration of the body's total response to applied stress. This view may be open to some misinterpretation since

subjective evaluation of the thermal environment includes two main categories of perception, namely thermal sensation and thermal preference. Identification of sensory states within the first category, thermal sensation, provide a verbal interpretation of thermal conditions of the body, and within the second category, a measure of the level of acceptability or degree of pleasantness or comfort associated with the sensed thermal state.

Research into the perception of environmental warm and cold heat that recognises this distinction has been reported in great detail in the literature ever since the work of Winslow and Herrington (1935) and Winslow, Herrington and Gagge (1937b, 1938) on the subject. The procedure involves registering the responses of subjects as recorded by a thermal sensation vote on a seven point ASHRAE scale (Roberts, 1958; Rohles, 1974), as well as a comfort vote on an interval scale (very unpleasant; unpleasant; indifferent; pleasant; very pleasant) shown in Table 2.

Subjective responses are seen to give simple descriptive meaning to body-environment thermal states subjectively determined, and in this sense are considered to be of greater significance in some cases than objective measurements of physiological responses. If subjective response is taken to be some conceptual integration of the total response of the body (i.e. strain) to applied stress, then response expressed quantitatively, can be related statistically to a similarly integrated index of environmental stress.

With this in mind, two schemes along the lines of the two approaches described above are used here. They were selected because they embody a methodology that simulates real processes of body-atmosphere energy exchange. Both procedures incorporate atmospheric and human physiological and behavioural variables and each provides a single objective numerical

index of thermal stress that is easy to interpret. Furthermore they are both well tested schemes appropriate to the climatic conditions of New Zealand.

One scheme labelled CLODEX presents a description and interpretation of human climates in terms of clothing required for comfort during cool or cold conditions for a variety of metabolic rates or types of activity. A second scheme labelled HEBIDEX is used which is applicable in both cool and warm conditions. It takes the form of a body-atmosphere heat exchange model that provides as output a single index expressed in terms of energy units above or below thermal neutrality for the same range of metabolic rates and activities. The energy based index values are presented along with corresponding interpretation of thermal sensation and pleasantness.

On the one hand, each of these schemes is seen to be sufficiently general so as to provide a broad, multipurpose assessment of climate in New Zealand in human terms. On the other hand, the two schemes are sufficiently dissimilar that each one presents integrated human climate information in fundamentally different but complementary ways. Detailed supplementary information is provided so that: a) the strengths and weaknesses of the procedure can be individually assessed by the user; and b) index values can be realistically interpretated and usefully applied. Each scheme embraces both the attributes of those exposed and the functional attributes of the atmospheric environment.

METHOD

HEBIDEX

HEBIDEX used here is based on the scheme presented and tested by de Freitas (1985), although the method and procedure on which it is based is both widely accepted and extensively dealt with in the literature. Details required for computation of HEBIDEX are presented here for completeness. However, for information related to the scientific basis of the scheme, its derivation and detailed operational aspects, the reader is referred to the original work (de Freitas, 1985). Special note is made and additional detailed information is given where modification of the procedure described by de Freitas (1985) is necessary for application in the present circumstances.

Each term in equation (1) represents an average rate of heat exchange per unit area of body surface. The total surface area of the body is calculated using the Dubois (Dubois and Dubois, 1915) formula given as

$$A_D = 0.00718\ W_t^{\,0.425}\ H_t^{\,0.725} \qquad (2)$$

An A_D value of 1.8 m^2 is taken as representative of the average person (Durnin and Passmore, 1967; Givoni, 1969; Fanger, 1970). The effective surface area involved will be different for the various processes of heat exchange depending on the position of the body with respect to the land surface. In the present circumstances the body position considered was that for a person standing with back to the sun.

The area involved in radiant energy exchange with the environment is a function of, on the one hand, the geometry of the body surface and, on the other, the directional properties of the radiation. The geometry of the body surface is complicated by appendages, protruberances and interception and interradiation between parts of the body, whereas the directional properties of radiant energy depend on the radiation component being considered. The reduced body surface area involved in the exchange process is the effective radiation area taken to be 0.71 A_D for the purposes of the present study. This value represents the area available for heat exchange by radiation while still allowing for interception and interradiation between parts of the body (Nielsen and Pederson, 1952).

Since the transfer of heat between the body and environment can take place at the exposed skin surface or through clothing worn, all terms in equation (1) have a component for the clothed and unclothed body surfaces. Subscripts for the clothed (cl) and unclothed (un) components involved in transfer processes are used accordingly in the various equations.

In recognition of the fact that in field studies it is impractical to measure clothing characteristics of the body, several empirical formulae and methods for estimating them have been devised and tested. Most procedures employ inputs relating to clo units. The clo unit is a widely used concept describing thermal resistance to heat flow along a thermal gradient which simplifies and standardises discussion of thermal insulation of air layers and fabrics, where 1 clo = 0.155°C $(W\ m^{-2})^{-1}$ (Gagge, Burton and Basett, 1941).

The thermal insulating values of typical clothing garments and ensembles (I_{cl}) as worn, and formulae for estimating ensemble

area factors and clo values for corresponding garment data have been presented in some detail in the literature, most recently by Fanger (1970), Seppanen et al., (1972), Sprague and Munson (1974) and Nishi, Gonzalez and Gagge (1975). For the combined insulating properties of specific combinations of clothing garments as worn, ensemble clo values ($\hat{I}_{cl}$) may be estimated from the formulae given by Sprague and Munson (1974):

$$\hat{I}_{cl} = 0.72\ I_{cl} + 0.11 \qquad \text{(clo) for men} \qquad (3)$$

$$\hat{I}_{cl} = 0.77\ I_{cl} + 0.05 \qquad \text{(clo) for women} \qquad (4)$$

where I_{cl} is the sum of individual garment clo values. Other work over the years has dealt with the effect of clothing on convective heat transfer and the resistance of fabrics to water vapour transfer and its effect on the efficiency of regulatory sweating (Fourt and Harris, 1949; Morris, 1955; Nagata, 1962; Woodcock, 1962; Fourt and Hollies, 1969; Nishi and Gagge, 1970; Gagge, Stolwijk and Nishi, 1971).

Based on this information, relationships between clo units for a range of clothing ensembles and area of the body covered by clothing have been presented by Myrup and Morgan (1972), given as

$$f_{acl} = -0.023 + 1.794\ I_{cl} - 1.10\ I_{cl}^{\,2} + 0.225\ I_{cl}^{\,3} \qquad (5)$$

In the present study, a clo value of 0.1 is used for HEBIDEX. This represents conditions in which approximately one third of the torso or 12 percent of the body area is covered by clothing which can be taken on the normal minimum reference condition for a person outdoors. Tables 3, 4 and 5 give detailed information on the types of garment and clo values for individual items of clothing and a variety of clothing ensembles.

The various clothing areas used in the present study are expressed by:

$$A_{cl} = f_{acl} A_D \tag{6}$$

$$A_{un} = f_{aun} A_D \tag{7}$$

$$f_{aun} = 1 - f_{acl} \tag{8}$$

The net gain of heat from metabolism depends on the metabolic rate as a function of level of activity and body area of the subject expressed:

$$M = G A_D \tag{9}$$

The metabolic rate (G) is proportional to the oxygen consumption via the respiratory tract which can be measured directly by well known procedures in partitional calorimetry (Winslow and Herrington, 1949; Stolwijk and Hardy, 1966). Of the energy released by the metabolic process, some may be partly transformed into mechanical work but is mainly converted to internal body heat. For certain activities such as lifting heavy objects the mechanical work performed can take on relatively high values; however, for light activities it is close to zero and can be neglected.

Metabolic rates for a great variety of normal activities are given in the literature (Gagge, Burton and Bazett, 1941; Hardy, 1949; Neilsen and Pedersen, 1952; Passmore and Durnin, 1955; Spector, 1956). For general reference purposes, the book by Durnin and Passmore (1967) is particularly useful which presents information on metabolic rates, compiled from various sources, for a great variety of recreational and sporting activities. Extensive general reference lists have been presented by Astrand and Rodahl (1970). Additional detailed

information is given here in Tables 6, 7 and 8. A value of 90 W m^{-2} is used here as representative of the individual standing and is used as the 'basic' reference conditions. Several other metabolic rates are also used in producing human climate information for New Zealand, namely, 120, 175 and 300 W m^{-2}, being representative of a typical walking speed (3 km hr^{-1}), light work or some types of leisure activities, and heavy work, respectively.

Convective heat exchange (C) between the body and the environment is given by:

$$C = C_r + C_{cl} + C_s \tag{10}$$

An empirical formulae for C_r has been given by Kerslake (1972) and Myrup and Morgan (1972) where:

$$C_r = 1.17 \times 10^{-3} G (37 - T_a) A_D \tag{11}$$

Convective heat transfer from the clothed and unclothed portions of the body are given by:

$$C_{cl} = h_c (T_s - T_a) F_{cl} f_a A_{cl} \tag{12}$$

$$C_s = h_c (T_s - T_a) f_a A_{un} \tag{13}$$

Kerslake (1972) showed that for outdoor conditions and for a wide range of wind speeds and body positions

$$h_c = 7.2 V^{0.6} \tag{14}$$

Since standard meteorological data for wind are based on measurements taken at 10 m above the ground, an adjustment to the height of the average individual at 1.7 m is required.

This, according to Steadman (1971) is:

$$V = 0.57\ V_{10} \tag{15}$$

The efficiency factor for clothing (F_{cl}) is a measure of the effectiveness of clothing as a barrier to dry heat flux between the skin surface and environment. A series of relationships exist between clothing and F_{cl}. For 0.1

$$F_{cl} = 0.879 - 0.054\ V + 0.0028\ V^2 \tag{16}$$

In addition to direct solar radiation, man in the outdoors is exposed to four discrete streams of radiation, namely, incoming diffuse solar, incoming longwave, reflected solar and longwave terrestrial radiation emitted from land based objects. There are several methods available for estimating the radiation heat load in the body. The procedure selected usually depends on the radiation data available and the level of accuracy required. Since solar radiation data are not available for all but four meteorological stations in New Zealand, the following procedure described by Auliciems and Kalma (1979), Iqbal (1983) and others is used here.

The following solar heat local expression integrates the effect of direct radiation, diffuse sky radiation, terrain-reflected radiation impinging on the clothed and unclothed portions of the body:

$$R = R_{un} + R_{cl} \tag{17}$$

$$R_{un} = R_t\ (1 - a_s)\ f_{aun} \tag{18}$$

$$R_{cl} = [R_t\ (1 - a_{cl}) - h_c\ (T_{cl} - T_a)\ 1.08\ A_D]\ f_{acl} \tag{19}$$

$$R_t = Q_v + q_v + Q_g + q_b \tag{20}$$

$$Q_v = A_D\ A_i\ (Q_h / \sin \alpha) \tag{21}$$

$$q_v = A_D\ (A_z + A_v / 2)\ q_h \tag{22}$$

$$Q_h = 1000\ [1 - \exp(-0.06\alpha)]\ [1-c]\ (r)^{-2} \sin \alpha \tag{23}$$

$$Q_h + q_h = 1353\ (1 - a_i c)\ [1 - k_i - k_{ii}\ (1 - c)]\ (r)^{-2} \sin \alpha \tag{24}$$

$$q_h = Q_h + q_h - Q_h \tag{25}$$

$$Q_g + q_g = (A_D\ A_v / 2)\ (Q_h + q_h)\ (\cos \alpha)\ a_g \tag{26}$$

$$\text{Sin}\ \alpha = \sin \delta \sin \phi + \cos \delta \cos \phi \cos h \tag{27}$$

$$\begin{aligned} \delta = {} & (0.006918 - 0.399912 \cos \Gamma + 0.070257 \sin \Gamma \\ & - 0.006758 \cos 2\Gamma + 0.000907 \sin 2\Gamma \\ & - 0.002697 \cos 3\Gamma + 0.00148 \sin 3\Gamma)\ (180/\pi) \end{aligned}$$

$$\Gamma = 2\ \pi(d_n - 1) / 365 \tag{29}$$

Values for A_i and k_{ii} are given in Tables 9 and 10. Albedo of the clothing (a_{cl}), albedo of the skin (a_s) and albedo of the ground (a_g) are taken at typical values of 0.30, 0.35 and 0.25, respectively.

Heat exchange by conduction (K) for a person standing, and wearing shoes, is very small and can be neglected.

The net exchange of longwave energy (L) radiating from the environment (L_e), the clothed surfaces of the body (L_{cl}) and directly from the skin surface (L_s) may be expressed:

$$L = L_e - (L_{cl} + L_s)$$

where:

$$L_e = \sigma \varepsilon_e T_a'^4 A_r \quad (31)$$

$$L_{cl} = \sigma \varepsilon_{cl} T_{cl}'^4 f_{acl} A_r \quad (32)$$

$$L_s = \sigma \varepsilon_s T_s'^4 f_{aun} A_r \quad (33)$$

giving:

$$L = [(\sigma \varepsilon_e T_a'^4) - (\sigma \varepsilon_{cl} T_{cl}'^4 f_{acl}) - (\sigma \varepsilon_s T_s'^4 f_{aun})] A_r \quad (34)$$

The various emissivities are 0.95 for ε_{cl}, 0.98 for ε_g and 0.90 for ε_e. Values of T_{cl} were taken as $T_{cl} = T_a$ between 2100 and 0600 hours, and between 0900 and 1800 hours estimated using empirical relations devised by Myrup and Morgan (1972) and Carlson and Hsieh (1970).

The formula for E_r is given by Fanger (1970) as:

$$E_r = 1.73 \times 10^{-3} G(58 - e) A_D \quad (35)$$

Basic to the HEBIDEX scheme is that, for body-environment thermal equilibrium in warm conditions, the cooling efficiency of sweating (f) depends on the ration between the total heat load on the body in the absence of active sweating (E_{req}) and the evaporative capacity of the environment (E_{max}); that is, the ration E_{req}/E_{max}. The equation for E_{max} contains one coefficient for a person with 0.1 clo of clothing is 31.6 for an average body area of 1.86 m^2 (Givoni, 1969) which gives a value of 14.9 m^2, with e in mb.

$$E_{max} = 14.9 V^{0.3} (56 - e) A_D \quad (36)$$

The equation for f is independent of clothing:

$$1/f = \exp [\ 0.6\ (E_{req}/E_{max} - 0.12)\ ] \quad (37)$$

If the ration of E_{req} to E_{max} is less than 0.12, 1/f is taken as 1.0 and if it exceeds 2.15, 1/f is taken as 0.29. Kerslake (1972) suggests that extension of this relation to values of E_{req}/E_{max} greater than 1.0 is a way of compensating for the assumption of a constant skin temperature (35°C) in equation (37) and, because of the presence of empirical coefficients, much of the error inherent in assuming a constant T_s value disappears.

The HEBIDEX model is expressed as two related forms of the energy balance equation based on T_s thresholds of 33°C for physiological neutrality (Hardy, 1949) and an average of 35°C during active sweating (Givoni, 1969) as follows:

$$\text{AT } T_s = 33°C,\ S_1^* = M + R + L + C + K + E_r \quad (38)$$

$$\text{At } T_s = 35°C,\ E_{req} = M + R + L + C + K + E_r \quad (39)$$

$$S_1^{**} = E_{req}\ f^{-1} \quad (40)$$

The computing sequence for HEBIDEX is as follows:

$$\text{If } S_1^* \leq 0 \text{ then HEBIDEX} = S_1^*$$

$$\text{If } S_1^* > 0 \text{ then HEBIDEX} = S_1^{**}$$

For transitional conditions if:

$$S_1^* > 0 \text{ and } S_1^{**} \leq 0 \text{ then HEBIDEX} = \frac{S_1^* + S_1^{**}}{2}$$

HEBIDEX, therefore, is presented as a two-node energy balance model that produces an output parameter representative of either the net heat load on the human body (S_1^{**}) or net heat deficit (S_1^{*}). In other words, S_1^{**} and S_1^{*} are a measure of the energy involved in maintaining steady state conditions under any given set of body-environment conditions.

CLODEX

CLODEX is based on the work of Burton and Edholm (1955). The procedure has been developed and the index applied in various ways by Auliciems, de Freitas and Hare (1973), Auliciems and de Freitas (1976) and de Freitas (1979). Using a body-atmosphere energy balance approach, the scheme identifies the amount of clothing insulation that is required to maintain thermal equilibrium between the human body and the environment, without sweating or shivering.

Clothing required for comfort (CLODEX) is expressed as:

$$\text{CLODEX} = \frac{T_s - T_a}{H} - \frac{I_a\ (H+R_c)}{H} \qquad (41)$$

where T_s in skin temperature at comfort taken as 33°C (Hardy, 1949). I_a is the reciprocal of convectional cooling C defined as the resistance to heat loss of the boundary air layer at the clothing surface. H is the rate of dry heat transfer to the environment, constant at approximately 75 percent of the metabolic rate G. The solar radiation term R_c in similar to R in HEBIDEX but is expressed in W m^{-2}.

Expressed in terms of the clothing unit (clo), CLODEX provides a measure of the insulation required to maintain thermal equilibrium between the body and a cold outdoor environment at a desirable level, for any type of activity, in a way that is easy to interpret and simple to use. Mean metabolic rates for a great variety of activities are

presented in Tables 6, 7 and 8.

The standard formula for I_a is:

$$I_a = \frac{1}{[0.61 + 0.19\ (V \times 100)^{0.5}]\ H} \qquad (42)$$

The reduction in the insulation of air is small at wind speeds above approximately 5 or 6 m s^{-1}; however, increased air movement will have an additional effect on the insulation of clothing as it penetrates the fabric and destroys the thermal resistance provided by the entrapped air. Since information on the behaviour of fabric combinations as regards wind penetration is complex, the presence of an impenetrable outer layer of fabric is assumed in calculating CLODEX.

The clothing unit (clo) is used to describe the thermal resistance to dry heat flow along a temperature gradient. It can be defined in terms of amounts and types of clothing which simplifies and standardizes description of thermal insulation of air layers and fabrics. The clo unit was intended to be thought of in familiar terms, specifically, as the insulating value of an average European business suit with associated shirt and undergarments. Another useful approximate equivalent of one clo unit is the added insulation provided by a substantial winter weather over-coat. One clo may also be visualised as a unit of thermal insulation which will maintain a resting, sitting person whose metabolic rate is 58 W m^{-2} indefinitely comfortable in an environment of 21°C, relative humanity less than 50% and air movement of 0.1 m s^{-1} (Gagge, Burton and Bazett, 1941). In precise physical terms, one clo unit will allow the passage of 1 kcal m^{-2} hr^{-1} between two surfaces with a temperature gradient of 0.18°C [1 clo = 0.155 °C $(W\ m^{-2})^{-1}$]

The insulation qualities of clothing assemblies as worn depend on several factors such as design, fit and flexibility of the garments.

However, insulation due to thickness, including air spaces up to 5 mm, can be approximated by a rule of thumb using a factor of 62 mm per clo, or 25 mm per 4 clo. Clothing thickness can be estimated with reasonable accuracy from the radius difference using a tape measure to determine the circumference of the body without clothing, and as each layer is added (Fourt and Hollies, 1969). Detailed information on individual clothing garments and ensembles commonly used by men and women are given in Tables 3, 4 and 5.

INTERPRETATION OF INDICES

To provide a broad, multipurpose assessment of human climate, both HEBIDEX and CLODEX are presented for all locations selected. The indices integrate all the important, thermally relevant aspects of both the human body and the atmospheric environment and provide a rationally based, unitary measure of the significance of the climate for the human being.

In the case of HEBIDEX, the index provides a measure of the body-atmosphere heat balance or imbalance, that is the degree of heat stress or cold stress, in real energy units relevant to all normal outdoor conditions. The significance of the index value may be 'visualised' or roughly interpreted in words with the use of Table 11. General thermal preferences (TLK) for various thermal states vary between individuals, but according to the results of work by de Freitas (1985) the most preferred conditions for a lightly clothed (I_{cl} = 0.1), sedentary person is "slightly warm". This is a TLK numerical value of 5 on the pleasantness scale given in Table 2 corresponding to a thermal sensation (TSN) value of 1 on the thermal sensation scale also given in Table 2. Specifically, the formula for estimating the

pleasantness vote (TLK) from thermal sensation votes (TSN) is given by de Freitas (1985) as:

$$TLK = 3.84 + 0.672\ TSN - 0.181\ TSN^2 - 0.044\ TSN^3 \quad (43)$$

The CLODEX scheme provides a specific recommendation as to the action required to offset the thermal imbalance brought about by cold conditions outdoors. Translation of CLODEX to specific clothing garments or ensembles is possible with the use of Tables 3, 4 and 5.

It should be noted that each index is applied to a specific human condition, which should be kept in mind when index values are to be selected and applied. The human condition most important to both schemes is that of activity level. Various levels of activity, that is, metabolic rate, are used to provide the user with a choice. Translation of these numerical values, or selection of specific activities, or comparison of metabolic rates, can be obtained from the detailed information presented in Tables 6, 7 and 8.

For the HEBIDEX model, the amount of clothing taken as being worn is important as it affects overall sensitivity to both warm and cool conditions. A choice is also provided. The main reference state is taken as 0.1 clo which is equivalent to light shorts and vest covering approximately 12 percent of the body surface area. This can be taken as the normal minimum clothing reference conditions for a person outdoors. A second reference state of 0.6 clo is used for HEBIDEX. This represents insulation typical of light summer attire of long-sleeve shirt, long pants and shoes collectively covering 74 percent of the body area.

In general, for applications where the absolute accuracy of the indices is in doubt it should be kept in mind that each index provides an evaluation of human climate that is consistent and, at the same time integrates all the important, thermally relevant atmospheric and physiological variables.

RESULTS

Data Availability and Areal Coverage

As both index schemes are a simulation of real conditions, they both require input data in the form of simultaneous measurements of atmospheric variables. This precludes the use of mean climatic data; although de Freitas (1979) has modified the CLODEX scheme to suit this type of data but it produces more generalised results with reduced accuracy. As the latter scheme is not used here, only those stations providing data based on simultaneous meteorological observations could be used. For the area covered by the New Zealand Meteorological Service, this includes 20 (AERO) stations at which 3-hourly meteorological observations are made. Detailed HEBIDEX and CLODEX information is provided for all of these stations.

There are also approximately 300 climatological stations at which simultaneous observations are made daily at 9:00 am. Clearly, 9:00 am is not a particularly important time of day given typical routines of urban and rural people. On the other hand, it can be argued that 9:00 am data are representative of, or close to, the daily mean for some types of weather conditions. With this in mind, index values for 9:00 am from the climatological stations are also provided. From them 21 stations were selected for more detailed treatment. A station was selected if it was located in a region of importance for outdoor recreation or tourism, or in an area with a relatively large population not included in the 3-hourly group of stations.

Data used in computations covers the 10-year period from 1972 to 1981 for the 3-hourly AERO stations, and the period 1972 to 1982 for most of the 9:00 am climatological stations. Means were derived from

calculated index values at every hour rather than from averages of the raw, hourly meteorological data.

The clo unit, being a measure of insulation, refers to a positive state of thermal resistance. To avoid the occurrence of negative values, a minimum CLODEX value was set at zero. For both HEBIDEX and CLODEX, minimum wind speed was set at 0.5 m s^{-1} to allow for both free convection and body movement.

Model Sensitivity and Reliability

Two stations were selected for sensitivity analysis to show the effect of on index values of changes in the four major meteorological parameters. Kaitaia and Invercargill were selected as they are located close to the latitudinal extremes of New Zealand. HEBIDEX values were calculated for 0300 and 1500 hours in January and July to give distributions of index values close to the coolest and warmest parts of the day in summer and winter. As CLODEX is a cool-cold condition index, the months of May and July were selected. January conditions produce index values of zero or close to zero.

Tables 12 and 13 show the results of the sensitivity analysis. Cloud cover, solar radiation, wind speed, air temperature and vapour pressure were considered and each was in turn varied while the others were held constant at the appropriate actual mean values. The effects of air temperature and wind on the final HEBIDEX values are significant. The sensitivity of HEBIDEX to wind at low temperatures is particularly noteworthy. This sensitivity is to be expected as the reference condition is that of a near naked individual (clothing level, 0.1 clo).

Both indices are sensitive to air temperature. Under clear sky conditions in summer the effect of solar radiation is considerable. This is widely recognised and is the reason why solar radiation should not be excluded from thermal assessment schemes that are applied to the open outdoor environment.

Solar radiation measurements are available for only four stations in New Zealand, namely: Auckland Airport; Kelburn, Wellington; Christchurch Airport; and Invercargill Airport. For these stations, estimated and measured hourly values of global radiation were compared. Estimated values agree well with actual recordings. For high solar radiation values, estimates are approximately 10% below measured values when there is more than four eighths cloud.

TABLES OF RESULTS

General

The results are presented in the form of groups of tables labelled A to K. A discussion of each group is given in the sections below. The tabulated information is always provided for each of the two indices, in both detailed and general form for the major population centres of New Zealand, as well as for certain remote locations at latitudinal extremes within the New Zealand region for which hourly meteorological data are available. In all cases the information can be interpretated in a general or a detailed way depending upon user requirements. Users of the information should consult Tables 2 to 8 and Table 11 included in the text to facilitate ready interpretation of the index values in simple, easily

understood terms. In the discussion that follows, examples of interpretation of results are given for Auckland City and Invercargill. In this way discussion will include climatic conditions encountered in two cities at about the latitudinal extremes of the country.

The tabulated results are designed to provide information to a large variety of users on the thermal significance of climate in New Zealand in a form that is easily interpreted and understood: either verbally as in the case of HEBIDEX (see Table 11); or in the case of CLODEX, directly in terms of clothing required for comfort outdoors. HEBIDEX also provides a quantitative measure of thermal stress in terms of universally understood and accepted energy units ($J\ s^{-1}$). For this reason the results are always given for both indices. The type of index is the main criterion for grouping of tables.

The next criterion for the grouping of tables is the amount of clothing taken as worn by the 'reference individual'. Clearly, this only applies in the case of HEBIDEX. A choice is provided. The main reference condition is 0.1 clo which is equivalent to light shorts and a vest. This is the major reference state as it represents one in which the individual is likely to be most sensitive to the full range of both warm and cool conditions. A second reference state of 0.6 clo is used for HEBIDEX. This is equivalent to the insulation provided by a clothing ensemble as worn comprising of a typical, light, long sleeve shirt, long pants and shoes. Equivalent ensembles for both men and women are given in Tables 3, 4 and 5.

Finally, tables are grouped according to quality and detail of meteorological information. There are two broad groups of stations, namely, the meteorological (AERO) stations providing detailed three-hourly data, and the climatological stations providing data from readings once-a-day at 0900 hours.

Metabolic Rates and Types of Activity

In all but three of the tables of results index values are provided for a variety of metabolic rates. The metabolic rate describes the activity or postural condition of the individual for which the index is being used. It is an important consideration as its effect on the net thermal state of the individual can be large. Consequently, the thermal significance of climatic conditions will depend on the particular human activity or activity class in which the user of the information is interested, regardless of which of the two indices is being used. For this reason, detailed information is given on metabolic rates, both as regards type of activity and corresponding metabolic rates (Tables 6, 7 and 8), as well as computed index values, so that the user of the indices can select an appropriate figure depending upon the type of activity or application in which they are interested.

Although the mean metabolic rate of a person outdoors is likely to be higher than that for an immobile, standing person (Table 8), it may be considered as the lowest expected heat production under normal circumstances outdoors. With increased metabolism a person should be able to remove garments according to need, but the definition of thermal stress for the most demanding situations, the ones involving least muscular activity, should facilitate the maintainance of thermal equilibrium at all times. Because of this, 90 W m^{-2} was selected as the basic reference condition. To supplement this information, index calculations based on two other metabolic rates are also used, namely, 120 and 175 W m^{-2}. These are typical of muscular activity associated with casual walking, and light work or some leisure activities, respectively (Tables 6, 7 and 8). In the case of the 21 climatological stations selected on the basis of their importance in relation to tourism and recreation, among other things, an

additional index calculation based on a metabolic rate of 300 W m^{-2} was also included. This borders on the 'heavy work' category likely to be encountered during vigorous sporting activities and some recreational pursuits such as tramping or hiking in rugged terrain.

Group A and B Tables

The results presented in this group of tables represents the base reference form of HEBIDEX. Clothing level is set at 0.1 clo which can be taken as the minimum clothing (shorts and vest) reference state for a person outdoors. In these circumstances the index is most sensitive to changes in thermal conditions.

Group A tables are on the left of the page and Group B on the right. Group A tables give detailed mean monthly, three-hourly HEBIDEX at a metabolic rate for a person standing still, a condition of minimal muscular activity. Standard deviations at midnight and noon are also presented as a measure of reliability of the mean values.

Group B tables present averages divided into two categories, namely, daytime averages for the period 0900 to 1800 hours, and night-time averages for 2100 to 0600 hours. The former is seen to be largely representative of the working day while the latter includes those hours most often associated with nocturnal, "after hours" activity. This is likely to be more useful than full, 24 hour, daily averages. Here, HEBIDEX is not only given for the basic reference metabolic rate of 90 W m^{-2}, but also 120 and 175 W m^{-2}. A metabolic rate of 120 W m^{-2} is representative of a variety of types of light activity such as golfing, trout fishing and casual walking, while 175 W m^{-2} corresponds to light work such as bricklaying and mixing cement and a variety of leisure activities such as

cycling, archery, croquet and playing bowls or cricket. Details are given in Tables 6, 7 and 8.

The effects of level of activity can be considerable, often equivalent to one point on the thermal sensation scale (Table 2). Differences in thermal bioclimate throughout the day are clearly shown in Group A tables. During February in Auckland City, for example, HEBIDEX varies between -210 at 2100 hours and 29 at noon. From Table 11, this is equivalent to feeling 'cool' during the late evening and close to 'slightly warm' in the middle of the day. A glance at the three-hourly HEBIDEX for Invercargill is enough to recognise the vast difference in human thermal climates between that city and Auckland, both in terms of the diurnal pattern and absolute level of thermal conditions. For example, in February the warmest part of the day is 'slightly cool' (HEBIDEX of -146 at noon) and 'cold' at 2100 hrs (HEBIDEX of -390). In Invercargill, at no time of the day throughout the year does HEBIDEX rise above approximately -150. On the other hand, thermal conditions are never really extreme or 'very cold'.

Group C and D Tables

Group C and D Tables are indentical to A and B with the exception that the amount of clothing worn by the reference individual is 0.6 clo. This is equivalent to a person wearing a long sleeve cotton shirt, long pants and shoes. Equivalent clothing ensembles for both men and women are given in tables 6, 7 and 8. The effect of added clothing is both to reduce the sensitivity of the index, compared to that at 0.1 clo. For example, in Auckland City at noon in February a person dressed in 0.6 clo would feel warm (HEBIDEX 191) as compared to 'indifferent' (HEBIDEX 29) standing still outdoors in a minimum amount of clothing (Group

A Table). This corresponds to thermal sensations of 'indifference' and 'slightly cool', respectively, in Invercargill at the same time of day and month. The effect of clothing for people engaged in moderate activity is quite pronounced. In Auckland during the daytime in summer the difference is equivalent to feeling 'hot' (HEBIDEX 293, metabolic rate 175 W m^{-2}, in January) dressed in 0.6 clo, compared with the feeling of just 'slightly warm' for a person dressed in shorts and brief vest.

Group E and F Tables

The structure and layout of Group E and F Tables is the same as that for Groups A and B except that the information applies to CLODEX. The CLODEX information enables the user to interpret the thermal demands of cool climate conditions in terms of the amount and type of clothing required to stay comfortable. Actual CLODEX values can be translated into specific clothing items and clothing ensembles by referring to Tables 3, 4 and 5. It is useful to note that one clo is approximately equal to the insulation provided by one substantial overcoat, or slightly less than that provided by a 3-piece business suit with associated shirt, vest, shoes and socks.

The main attractiveness of CLODEX is that it provides an objective rating of cool climates in terms of a specific behavioural adjustment required to offset body cooling in easy to interpret terms of clothing. Clearly, the index is designed for cool climates, and is most useful in thermal climatic conditions that are not too close to neutrality (i.e. at CLODEX greater than about 0.3 clo).

A comparison of CLODEX for Auckland City and Invercargill for the mid-winter month of July illustrates aspects of the variability of conditions in New Zealand both diurnally and spatially. During July in

Auckland CLODEX varies between 1.2 clo at noon and 1.8 clo at midnight. In other words, on average, people would have to add to their daywear outfit, clothing equivalent to a heavy woollen sweater, or standard warm knit sweater plus a single ply cotton and dacron jacket, to offset the cooler conditions encountered around midnight. In Invercargill, CLODEX at noon and midnight are 1.7 and 2.3 clo, respectively. Thus, during the middle of the day, on average, a person would require the insulation provided by a business suit and overcoat to stay comfortable. By midnight a shirt, warm knit sweater, long woollen pants and woollen jacket would be required for comfort. The clo values of numerous clothing ensembles or combinations of clothing items of various or equivalent insulation properties for both men and women can be obtained from Tables 3, 4 and 5.

It is noteworthy that some clothing insulation is required all year round at all stations throughout New Zealand other than for Gisborne and Raoul Island. In fact, it is remarkable that Raoul Island appears to have a most salubrious climate, one that is attractively moderate and mild. If salubrity in this context is defined as a climate of minimal thermal stress and variability, Raoul Island is unique in this regard, according to both indices.

Group G and H Tables

Information presented in these groupings of tables are based on data from the New Zealand network of climatological stations at which only one observation per day is made, at 0900 hours. Clearly, 0900 hours is not a particularly important time of day. Also there are problems associated with the variability of the solar heat load on the body at this

time of day because of a combination of angle of incidence of the solar beam, intensity of solar radiation and the large seasonal variability at each location. However, because of the low density of first order meteorological stations in the country and very poor coverage in certain areas these data were used.

There are approximately 300 climatological stations at which simultaneous observations are made daily at 0900 hours. From them, 21 stations were selected for more detailed treatment. These are the stations in the G and H groupings of tables. A station was selected if it was located in a region of importance for outdoor recreation or tourism, or in an area with a relatively large population not included in the three-hourly group of stations A to F. Index values for an additional metabolic rate of 300 W m^{-2} were included to provide an estimate of the thermal conditions that would exist for an individual engaged in moderate to heavy activities such as hiking in rough terrain, or playing rugby or soccer.

In addition the thermal influence of solar radiation was given special attention. This is because the solar heat load on the body during daylight hours can be large, often in the order of 200 W m^{-2}. However, this heat load is highly variable depending upon the position and posture in relation to the sun, amount of cloud cover, and whether the person is in the direct sun or shade of a nearby object. With this in mind, two index values are provided for the basic 90 W m^{-2} reference activity level. One includes the solar heat load term in calculations in the normal manner, as described earlier, the other assumes that the solar heat on the body is zero. The users of the tabulated information, therefore, can assess for themselves, depending on the particular application, the relative importance of the solar term.

In this grouping of tables the 'very cold' conditions that occur during July through to September at Mt Ruapehu, Waikaremoana, Stratford Mountain House, Turoa, Ohakune, Lake Rotoita, The Hermitage and Ski Basin are particularly noteworthy. At Ski Basin during July and August, CLODEX is 3.0 clo for a sedentary person in the shade (Group H, 90 W m^{-2}, R = 0). Thus, a person would be required to wear heavy outdoor winter wear including a thick woollen coat and hat to stay comfortable. This is a state of dress not far removed thermally from that of the standard polar weather ensemble (Table 3).

Group I, J and K Tables

Information in these groups of tables is based on 0900 hours data, as is the case for Groups G and H. Groups I and J provide HEBIDEX values for 0.1 and 0.6 clo clothing amounts respectively, while CLODEX is provided by Group K. The basic reference metabolic rate of 90 W m^{-2} is used throughout.

There are approximately 300 stations in these groupings which provide the best available spatial coverage of the country. However, the usefulness of this information depends on the adequacy of the 0900 hours data base. Observations at 0900 hours occur during the night-to-day transition period within which the relative influence of solar radiation, air temperature and wind varies with season and daylength.

The large thermal effect of wind is conspicuous at certain stations where site and location contribute to the large intervening influence. Examples of this can be seen in the results for Mokohinau (A55911), Mt. Te Aroha TV Station (B75572) and Puysegur Point (F66161).

Generally, the results suggest that the climate of New Zealand is thermally moderate, or on the cool side of thermally neutral. Climatic

conditions that result in heat stress are rare. By the same token, conditions of severe cold stress are equally rare. The moderating influence of the sea is evident in the results for many of the coastal locations.

Clearly, a regional scale classification of human thermal climates of New Zealand would be desirable although adequate spatial coverage would be difficult given the scarcity of meteorological stations that provide the data base required. However, it may be possible to devise a modified scheme that uses estimates of mean diurnal maximum and minimum thermal conditions from standard climatic data.

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APPENDIX I

LIST OF TABLES

Table 1. Notation

Symbol	Description	Units
a	albedo of surface	
a_{cl}	albedo of clothing	
a_i	mean cloud albedo taken at 0.5 (Paltridge, 1973)	
a_s	albedo of skin	
A_{cl}	effective clothed area	m^2
A_D	Dubois area	m^2
A_{un}	effective unclothed area	m^2
A_i	body area fraction	
A_r	effective radiation area	m^2
A_v	fraction body area facing horizon	
A_z	fraction body area facing zenith	
c	cloud cover	(tenths)
C	body-environment convective heat flux	W
C_{cl}	convective heat flux through clothing	W
C_r	convective heat flux from respiration	W
C_s	convective heat flux from skin	W
e	vapour pressure of air	mb
E	body-environment evaporative heat flux	W
E_{max}	evaporate capacity of the air	W
E_r	evaporative heat flux due to respiration	W
E_{reg}	total heat load on body before sensible sweating	W
f^{-1}	cooling efficiency of sweating	
f_a	effective area factor	
f_{acl}	ratio of clothed area to Dubois area	
f_{aun}	ratio of unclothed area to Dubois area	
F_{cl}	efficiency factor for convective heat flux through clothing	
G	metabolic rate	$W\ m^{-2}$
h	solar hour angle	(deg)
H_t	body height	cm
I_{cl}	thermal resistance of clothing	clo
$\hat{I}_{cl}$	estimate of combined ensemble insulation	clo
I_s	sum of individual garment insulation	clo
k_i	absorption due to H_2O vapor set at 0.18	
k_{ii}	albedo of clear sky (see Table 10)	
K	body-environment conductive heat flux	W
L	body's heat loss or gain by longwave radiation	W
L_{cl}	longwave radiation from clothing	W
L_e	longwave radiation from the environment	W

Table 1. Continued

Symbol	Description	Units
L_{gr}	longwave radiation from ground	W
L_s	longwave radiation from skin	W
L_{sky}	longwave radiation from sky	W
M	body's gain of heat from metabolism	W
r	radius vector of sun-earth distance	
R	body's gain of heat from solar radiation	W
R_t	total solar irradiance on body	W
R_c	solar heat load on clothing	W m^{-2}
R_{cl}	solar heat load on clothing	W
R_{un}	solar heat load on skin	W
S_1	net thermal state	W
S_1*	HEBIDEX at T_x = 33 °C	W
S_1**	HEBIDEX at T_x = 35 °C	W
T_a	air temperature	°C
T_{cl}	clothing temperature	°C
T_{gr}	temperature of ground	°C
T_s	average skin temperature	°C
T_{sky}	temperature of sky	°C
T_{wd}	wet bulb depression	°C
V	wind speed	m s^{-1}
V_{10}	wind speed at 10m	m s^{-1}
W_t	body weight	kg
α	solar angle	deg
Γ	day angle	radiaus
δ	solar declination	deg
ε_e	emissivity of surroundings	
ε_{cl}	emissivity of clothing	
ε_s	emissivity of skin	
σ	Stefan-Boltzmann coefficient	W m^{-2} K^{-4}
ϕ	latitude	deg

Table 2 Scales of thermal sensation and pleasantness

Description	Numerical Code
Thermal Sensation	
Very cold	-4
Cold	-3
Cool	-2
Slightly cool	-1
Neutral (i.e. neither warm nor cool)	0
Slightly warm	1
Warm	2
Hot	3
Very hot	4
Pleasantness	
Very pleasant	5
Pleasant	4
Indifferent (i.e. neither pleasant nor unpleasant)	3
Unpleasant	2
Very unpleasant	1

Table 3 Common clothing ensembles with approximate insulation values

No	Clothing ensemble	Insulation value (clo)
1.	Nude	0
2.	Swim suit (8 per cent of body area covered)	0.07
3.	Cotton shorts	0.1
4.	Tropical wear: shorts, open-neck cotton short-sleeve shirt, sandals	0.3-0.4
5.	Light summer attire: long light-weight trousers, short-sleeve open neck shirt, shoes, socks	0.5-0.6
6.	Light outdoor sportswear: cotton short-sleeve shirt, T-shirt, light trousers, socks, shoes, single ply cotton and dacron jacket	0.7-0.9
7.	Typical business suit	1.0
8.	Typical business suit plus cotton over-coat	1.5
9.	Heavy traditional European business suit: cotton underwear, long sleeve shirt, suit including jacket, vest and trousers, shoes	1.5
10.	Business suit plus substantial overcoat and woollen hat	1.8-2.4
11.	Cool weather sportswear: wool and nylon flannel shirt, cotton short-sleeve undershirt, long heavy-weight trousers, woollen wind resistant jacket, woollen socks, shoes, hat	2.2-2.7
12.	Outdoor winter wear: long woollen underwear, flannel/ wool long-sleeve shirt, woollen sweater, heavy trousers, woollen hat, heavy coat, woollen socks, shoes or boots	3.0-3.9
13.	Polar weather four-layer ensemble: i) long woollen underwear and socks; ii) woollen long-sleeve shirt and trousers, shoes or additional socks; iii) coveralls, wool knit gloves, woollen cap; iv) well insulated parka with hood, mittens, fur-lined boots.	4.0-4.7

Compiled from: Fourt and Harris (1949), Horn (1968), Fourt and Hollies (1969), Fanger (1970), Sprague and Munson (1974), ASHRAE Handbook (1981).

Table 4 Clo values for individual men's and women's garments

No	Description	Insulation value (clo)
MEN		
1.	Briefs	0.05
2.	Sleeveless undershirt	0.06
3.	Short-sleeve undershirt (T-shirt)	0.09
4.	Shoes	0.04
5.	Cool socks	0.03
6.	Warm socks	0.04
7.	Short-sleeve woven shirt (plain weave)	0.19
8.	Long-sleeve woven shirt (plain weave)	0.29
9.	Cool trousers (plain weave)	0.26
10.	Warm trousers (twill weave)	0.32
11.	Short-sleeve cool knit shirt	0.22
12.	Short-sleeve warm knit shirt	0.25
13.	Long-sleeve cool knit shirt	0.24
14.	Long-sleeve warm sweater (knit)	0.37
15.	Warm sports jacket (twill weave)	0.49
WOMEN		
1.	Pantihose	0.01
2.	Bra and panties	0.04
3.	Girdle	0.04
4.	Full-slip	0.19
5.	Half-slip	0.13
6.	Cool dress (knit, plain weave)	0.17
7.	Warm dress (plain weave)	0.63
8.	Warm long-sleeve blouse (plain weave)	0.29
9.	Warm skirt	0.22
10.	Cool long-sleeve blouse (plain weave)	0.20
11.	Cool slacks (knit)	0.26
12.	Warm slacks (twill)	0.44

Table 5 Typical clo values of specific men's and women's garment ensembles while sedentary

No	Clothing ensemble	Insulation value (clo)
MEN		
1.	Cool socks, briefs, shoes, s.s. woven shirt, cool trousers	0.57
2.	Cool socks, briefs, undershirt, shoes, s.s. woven shirt, cool trousers	0.63
3.	Cool socks, briefs, T-shirt, shoes, s.s. woven shirt, cool trousers	0.66
4.	Warm socks, briefs, shoes, s.s. woven shirt, cool trousers	0.58
5.	Cool socks, briefs, shoes, s.s. cool knit shirt, cool trousers	0.79
6.	Cool socks, briefs, shoes, s.s. warm knit shirt, cool trousers	0.82
7.	Cool socks, briefs, undershirt, shoes, l.s. woven shirt, cool trousers	0.73
8.	Cool socks, briefs, undershirt, shoes, s.s. woven shirt, warm jacket, cool trousers	1.12
9.	Cool socks, briefs, undershirt, shoes, s.s. woven shirt, l.s. warm sweater, cool trousers	1.00
10.	Cool socks, briefs, shoes cool trousers	0.38
11.	Cool socks, briefs, shoes, s.s. woven shirt, warm trousers	0.63
12.	Cool socks, briefs, undershirt, shoes, s.s. woven shirt, warm jacket, warm trousers	1.18

continued

Table 5 Continued

No	Clothing ensemble	Insulation value (clo)
WOMEN		
1.	Cool dress, pantihose, bra and panties, shoes	0.27
2.	Cool s.s. sweater, cool dress, pantihose, bra and panties, shoes	0.44
3.	Cool s.s. sweater, cool slacks, pantihose, bra and panties, shoes	0.53
4.	Warm dress, pantihose, bra and panties, shoes	0.73
5.	Warm dress, full-slip, pantihose, bra and panties, shoes	0.92
6.	Warm skirt, warm l.s. blouse, pantihose, bra and and panties, shoes	0.61
7.	Warm l.s. sweater, warm skirt, pantihose, bra and panties, shoes	0.69
8.	Warm l.s. sweater, warm skirt, half-slip, girdle, pantihose, bra and panties, shoes	0.85
9.	Warm l.s. sweater, warm skirt, warm l.s. blouse, pantihose, bra an panties, shoes	0.98
10.	Warm slacks, warm l.s. blouse, pantihose, bra and panties, shoes	0.83
11.	Warm l.s. sweater, warm slacks, warm l.s. blouse pantihose, bra and panties, shoes	1.20
12.	Warm l.s. sweater, warm slacks, pantihose, bra and panties, shoes	0.91

Source: ASHRAE Handbook (1981).

Table 6 Metabolic rates for general recreational activity classes and selected leisure activities

Activity	Metabolic rate ($W\ m^{-2}$)
Sedentary: card games, playing musical instruments, suntanning	< 80
Light: archery, billiards, bowls, cricket, croquet, golfing, sailing, table tennis, trout fishing, volley ball	80 - 200
Moderate: badminton, canoeing, cycling, dancing, gardening, gymnastics, hockey, horse riding, skiing , swimming, tennis	200 - 350
Heavy: athletics, basketball, boxing, climbing, cross-country walking, fencing, football, rowing, rugby, squash, wrestling	> 350
Stream fishing	70 - 115
Bicycling slowly	105
Canoeing, 4 km hr^{-1}	120
Golfing, swinging and walking	80 - 155
Golfing, swinging and using golf cart	80 - 105
Gymnastics (calisthenics exercise)	170 - 235
Dancing	140 - 260
Bicycling, 6 km hr^{-1}	180
Tennis, singles	200 - 270
Squash	290 - 420
Basketball	290 - 440
Wrestling, competitive	410 - 510
Bicycling fast, 20 km hr^{-1}	580
Jogging and running:	
Jogging at 10 km hr^{-1}	350
Jogging at 12 lm hr^{-1}	460
Running at 14 km hr^{-1}	560
Running at 16 km hr^{-1}	680
Running at 19 km hr^{-1}	900

Compiled from: Passmore and Durnin (1955); Morehouse and Miller (1963); Durnin and Passmore (1967); Fanger (1970).

Table 7 Metabolic rates for various work activity classes with examples

Activity and work classification	Metabolic rate ($W\ m^{-2}$)
Light work	100 - 200
Machine sawing (wood)	115
Light assembly work	130
Machine milking	150
Bricklaying	160
Digging with spade (soft earth)	180
Mixing cement	180
Breaking firewood	190
Moderate work	200 - 300
Carrying a 20 kg load at 1.5 km hr^{-1}	250
Sawing wood by hand (softwood)	260
Ploughing with tractor	260
Gardening, hoeing	285
Heavy work	> 300
Planning by hand	330
Pushing wheelbarrow, 110 kg load	340
Carrying a 20 kg load at 5 km hr^{-1}	415
Hewing with pick	480
Shovelling 8 kg load, 1 m lift, 12 per min	520
Tree felling with hand saw (hardwood)	745

Compiled from: Christensen (1953); Passmore and Durnin (1955); Spector (1956); Bruce (1960); Fourt and Hollies (1969); Fanger (1970).

Table 8 Metabolic rates for sedentary conditions, standing and walking

Activity		Metabolic rate ($W\ m^{-2}$)
Sleeping		42
Sitting quietly		58
Standing relaxed		90
Standing at attention		100
Strolling at 3.5 km hr^{-1}		120
Walking:		
On the level	km hr^{-1}	
	3.0	114
	4.0	140
	5.0	160
	6.0	195
	6.5	230
	8.0	316
Up a grade (% grade)	km hr^{-1}	
5	1.6	140
5	3.0	170
5	5.0	240
5	6.0	335
15	1.6	168
15	3.0	255
15	5.0	415
25	1.6	210
25	3.0	380

Compiled from: Christensen (1953); Passmore and Durnin (1955); Spector (1956); Bruce (1960); Fourt and Hollies (1969); Fanger (1970).

Table 9 Body area (A_i) receiving direct solar radiation for standing person facing the sun

α	A_i
90	0.10
75	0.11
60	0.18
45	0.22
30	0.25
0	0.60

Table 10 Albedo of clear sky (calculated from Paltridge, 1973)

α	k_{ii}
> 79	0.05
58 - 79	0.06
46 - 57	0.07
38 - 45	0.08
34 - 37	0.09
< 34	0.10

Table 11 Rough interpretation of HEBIDEX values in terms of thermal sensation categories

HEBIDEX range (W)	Thermal sensation Code	Description
> 530	4	Very hot
275 to 529	3	Hot
141 to 274	2	Warm
31 to 140	1	Slightly warm
-84 to 30	0	Indifferent
-185 to -85	-1	Slightly cool
-314 to -186	-2	Cool
-479 to -315	-3	Cold
< -500	-4	Very cold

Table 12 Sensitivity Analysis for HEBIDEX (clothing level = 0.1 clo)

	C (eighths)	R_t (Wm^{-2})	HEBIDEX	V [$m\ s^{-1}$] (knots)	HEBIDEX	T_a (°C)	HEBIDEX	e (mb)	HEBIDEX	HEBIDEX at actual mean values
Kaitaia										
January	1	481	246	0.5 (1)	196	18	29	8	111	
	4	348	146	4.0 (8)	115	23	115	8	115	
	7	216	56	7.0 (14)	46	28	210	28	121	
Actual mean	5.0	304		4.0 (8)		23		18		115
July 0300	-	-	-	0.5 (1)	-154	4	-395	6	-317	
	-	-	-	4 (8)	-291	9	-307	11	-316	
	-	-	-	7 (14)	-426	14	-218	16	-314	
Actual mean	-	-		4.5 (9)		8.5		11		-316
Invercargill										
January	1	449	78	0.5 (1)	86	13	-110	7	-15	
	4	310	10	4 (8)	8	18	-13	13	-13	
	7	170	-62	7 (14)	-59	23	42	19	-12	
Actual mean	5.4	245		5.3 (10)		18		13		-13
July 0300	-	-	-	0.5 (1)	-237	-4	-443	5	-368	
	-	-	-	4 (8)	-416	1	-368	7	-368	
	-	-	-	7 (14)	-593	6	-293	9	-368	
Actual mean	-	-	-	3.3 (6)		1		7	-368	-368

Table 13 Sensitivity Analysis for CLODEX

	C (eighths)	R_t (Wm^{-2})	CLODEX	V [$m\ s^{-1}$] (knots)	CLODEX	T_a (°C)	CLODEX	e (mb)	CLODEX	CLODEX at actual mean values
Kaitaia										
May 1500	1	551	0	0.5 (1)	0	13	0.6	7	0.2	
	4	459	0.1	4.0 (8)	0.2	18	0.2	15	0.2	
	7	367	0.3	7.0 (14)	0.4	23	0	23	0.2	
Actual mean	5.4	416		4.0 (8)		18		15		0.2
July 0300	-	-	-	0.5 (1)	1.8	4	2.4	6	2.0	
	-	-	-	4 (8)	2.0	9	1.9	11	2.0	
	-	-	-	7 (14)	2.0	14	1.5	16	2.0	
Actual mean	-	-	-	4.5 (9)		8.5		11		2.0
Invercargill										
May 1500	1	560	0.4	0.5 (1)	0.3	7	1.2	7	0.8	
	4	464	0.6	4 (8)	0.8	12	0.8	10	0.8	
	7	368	0.8	7 (14)	1.0	17	0.3	13	0.8	
Actual mean	6	400		4 (8)		12		10		0.8
July 0300	-	-	-	0.5 (1)	2.6	-4	3.1	5	2.7	
	-	-	-	4 (8)	2.7	1	2.7	7	2.7	
	-	-	-	7 (14)	2.8	6	2.2	9	2.7	
Actual mean	-	-		3.3 (6)		1		6.5		2.7

APPENDIX II

SPECIAL SELECTED 0900 HOURS STATIONS

A53293	Kerikeri Aerodrome
A53651	Waipoua Forest
B86602	Taupo
C75832	Hamilton Airport
C95251	Chateau, Mt. Ruapehu
D87811	Onepoto, Waikaremoana
D96688	Hastings
E94313	Stratford Mountain House
E95351	Turoa, Mt. Ruapehu
E95445	Ohakune Junction
F12882	Lake Rotoiti
F21422	Greymouth
F30311	Franz Joseph
F4791	Milford Sound
H30711	The Hermitage, Mt. Cook
H31162	Ski Basin
I49711	Wanaka
I57473	Te Anau
I58061	Queenstown
I59234	Alexandra
I68913	Stewart Is.

3-HOURLY STATIONS

011	Kaitaia Airport
112	Whenuapai
115	Auckland City
119	Auckland Airport
246	Rotorua Airport
291	Gisborne Airport
308	New Plymouth Airport
401	Ohakea Airport
417	Paraparumu Airport
434	Kelburn, Wellington
436	Wellington Airport
545	Nelson Airport
614	Hokitika Airport
677	Kaikoura Airport
780	Christchurch Airport
844	Invercargill Airport
890	Dunedin Airport
944	Campbell Is.
986	Chatham Is.
997	Raoul Is.

APPENDIX III

TABLES OF RESULTS

Group A and B Tables (Pages 56 - 60)

A: Monthly three-hourly HEBIDEX at a metabolic rate of 90 W m^{-2} for clothing level of 0.1 clo.

B: Mean monthly day and night HEBIDEX at three activity levels, 90, 120 and 175 W m^{-2} for a clothing amount of 0.1 clo.

Group C and D Tables (Pages 61 - 65)

C: Mean monthly three-hourly HEBIDEX at a metabolic rate of 90 W m^{-2} for a clothing level of 0.6 clo.

D: Mean monthly day and night HEBIDEX at three activity levels, 90, 120 and 175 W m^{-2} for a clothing amount of 0.6 clo.

Group E and F Tables (Pages 66 - 70)

E: Mean monthly three-hourly CLODEX at a metabolic rate of 90 W m^{-2}.

F: Mean monthly day and night CLODEX for three activity levels, 90, 120 and 175 W m^{-2}.

Group G Tables (Pages 71 - 72)

Mean monthly 0900 hours HEBIDEX for a clothing amount of 0.1 clo and at four activity levels: 90, 120, 175 and 300 W m^{-2}.

Group H Tables (Pages 73 - 74)

Mean monthly 0900 hours CLODEX for four activity levels: 90, 120, 175 and 300 W m^{-2}.

Group I Tables (Pages 75 - 77)

Mean monthly 0900 hours HEBIDEX at a metabolic rates of 90 W m^{-2} and for a clothing level of 0.1 clo.

Group J Tables (Pages 78 - 80)

Mean monthly 0900 hours HEBIDEX at a metabolic rate of 90 W m^{-2} and for a clothing level of 0.6 clo.

Group K Tables (Pages 81 - 83)

Mean monthly 0900 hours CLODEX for a metabolic rate of 90 W m^{-2}.

011 KAITAIA AIRPORT LAT 35 04 S LONG 173 17 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-170	-190	-77	23	69	37	-73	*	113	107
Feb	-172	-206	-132	15	63	25	-82	*	113	91
Mar	-195	-216	-222	-31	24	-16	-152	*	106	94
Apr	-259	-272	-280	-97	-77	-121	-250	*	126	128
May	-300	-320	-338	-153	-157	-202	-309	*	147	150
Jun	-370	-379	-383	-226	-224	-260	-358	*	158	166
Jul	-394	-407	-411	-250	-267	-317	-400	*	174	180
Aug	-364	-378	-392	-225	-243	-298	-377	*	174	159
Sep	-358	-364	-392	-231	-213	-252	-345	*	180	148
Oct	-335	-354	-352	-194	-141	-172	-266	*	151	125
Nov	-252	-267	-224	-101	-55	-72	-143	*	144	109
Dec	-231	-240	-132	-58	-12	-45	-157	*	133	107

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	30	-143	73	-97	161	-15
Feb	21	-169	63	-123	147	-40
Mar	-42	-212	0	-164	79	-80
Apr	-136	-271	-91	-222	-10	-137
May	-205	-320	-158	-271	-74	-186
Jun	-267	-378	-220	-330	-134	-243
Jul	-309	-404	-262	-356	-175	-269
Aug	-286	-379	-239	-331	-154	-244
Sep	-260	-374	-213	-326	-129	-239
Oct	-192	-348	-146	-299	-64	-213
Nov	-81	-246	-38	-198	37	-115
Dec	-48	-201	-6	-154	72	-71

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Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-130	-175	-43	22	69	46	-57	-147	113	114
Feb	-210	-152	-66	36	81	57	-61	-135	116	104
Mar	-181	-159	-156	12	34	-2	-144	-151	101	106
Apr	-269	-226	-232	-63	-53	-95	-224	-208	138	121
May	-242	-271	-292	-141	-158	-190	-282	-285	156	153
Jun	-323	-304	-316	-194	-191	-232	-305	-299	175	165
Jul	-383	-353	-342	-210	-223	-275	-347	-330	228	162
Aug	-289	-308	-307	-167	-188	-252	-343	-314	175	152
Sep	-261	-350	-323	-207	-193	-233	-329	-319	145	152
Oct	-323	-347	-279	-151	-116	-156	-235	-282	165	132
Nov	-215	-233	-177	-88	-41	-59	-151	-202	138	123
Dec	-171	-174	-93	-46	4	-23	-106	-206	100	120

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	20	-84	65	-38	150	46
Feb	28	-96	72	-51	160	31
Mar	-25	-155	19	-108	102	-28
Apr	-109	-221	-64	-173	17	-90
May	-193	-286	-147	-238	-64	-153
Jun	-231	-307	-184	-260	-100	-173
Jul	-264	-338	-217	-290	-132	-203
Aug	-238	-310	-191	-262	-107	-175
Sep	-240	-321	-194	-273	-110	-187
Oct	-165	-287	-120	-239	-39	-154
Nov	-85	-195	-42	-148	37	-67
Dec	-43	-126	0	-81	80	2

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Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-208	-196	-71	-18	11	-17	-116	-225	117	107
Feb	-178	-178	-78	-2	29	-6	-129	-210	112	97
Mar	-190	-185	-175	-28	-6	-48	-199	-205	120	103
Apr	-252	-242	-249	-106	-103	-147	-290	-258	140	139
May	-285	-285	-297	-151	-174	-242	-332	-284	154	160
Jun	-330	-340	-337	-212	-222	-276	-353	-335	167	174
Jul	-355	-366	-369	-235	-260	-326	-397	-360	176	176
Aug	-351	-340	-333	-210	-235	-300	-399	-350	176	167
Sep	-361	-349	-346	-227	-225	-282	-401	-371	172	157
Oct	-313	-314	-302	-202	-167	-204	-304	-340	156	139
Nov	-268	-266	-195	-138	-95	-126	-221	-289	145	131
Dec	-246	-238	-127	-85	-46	-84	-183	-276	143	118

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	-35	-175	8	-128	88	-43
Feb	-27	-161	14	-114	96	-31
Mar	-70	-189	-27	-142	53	-59
Apr	-162	-250	-115	-202	-32	-119
May	-225	-288	-178	-240	-93	-156
Jun	-266	-336	-219	-288	-134	-202
Jul	-304	-363	-258	-315	-172	-228
Aug	-286	-344	-239	-296	-155	-209
Sep	-284	-356	-237	-308	-152	-223
Oct	-219	-318	-174	-269	-91	-185
Nov	-145	-255	-101	-207	-22	-123
Dec	-100	-222	-57	-174	21	-90

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Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-238	-233	-106	-1	44	1	-118	-253	135	112
Feb	-200	-196	-111	21	62	10	-132	-230	123	108
Mar	-188	-194	-190	-20	19	-24	-190	-211	122	112
Apr	-266	-280	-285	-118	-76	-135	-315	-280	155	156
May	-331	-324	-339	-185	-164	-236	-367	-340	166	186
Jun	-375	-376	-367	-237	-209	-276	-397	-358	179	198
Jul	-390	-399	-406	-265	-240	-291	-419	-397	172	198
Aug	-378	-388	-388	-227	-211	-276	-418	-393	175	172
Sep	-403	-400	-396	-233	-199	-265	-414	-413	175	171
Oct	-371	-370	-368	-191	-152	-200	-308	-384	166	151
Nov	-307	-313	-241	-116	-68	-102	-223	-326	147	133
Dec	-285	-290	-154	-58	-13	-54	-166	-301	147	123

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	-19	-207	25	-160	109	-75
Feb	-10	-184	34	-137	119	-54
Mar	-54	-196	-10	-148	73	-66
Apr	-161	-278	-115	-229	-31	-145
May	-238	-334	-191	-285	-106	-199
Jun	-280	-369	-233	-321	-147	-234
Jul	-304	-398	-257	-350	-171	-263
Aug	-283	-387	-236	-339	-151	-251
Sep	-278	-403	-231	-355	-146	-268
Oct	-213	-373	-166	-325	-85	-238
Nov	-127	-297	-83	-248	-4	-163
Dec	-73	-258	-30	-210	51	-124

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Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-226	-209	-83	10	69	44	-83	*	140	131
Feb	-191	-191	-88	17	87	45	-102	*	126	122
Mar	-183	-195	-177	-11	35	-6	-195	*	121	132
Apr	-263	-281	-264	-108	-67	-111	-283	*	159	157
May	-324	-329	-312	-162	-173	-205	-340	*	166	187
Jun	-346	-369	-360	-223	-232	-255	-364	*	191	198
Jul	-347	-339	-356	-216	-256	-276	-371	*	174	201
Aug	-329	-341	-340	-199	-190	-225	-367	*	176	190
Sep	-354	-338	-338	-206	-167	-225	-378	*	173	172
Oct	-314	-317	-317	-177	-100	-135	-269	*	157	150
Nov	-278	-259	-177	-71	-20	-66	-166	*	142	135
Dec	-245	-247	-126	-46	14	-29	-137	*	145	140

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	12	-172	57	-126	144	-43
Feb	15	-157	61	-110	149	-30
Mar	-44	-185	2	-137	88	-58
Apr	-142	-269	-96	-221	-13	-137
May	-220	-322	-174	-274	-89	-188
Jun	-269	-358	-222	-311	-137	-224
Jul	-280	-348	-234	-300	-149	-213
Aug	-246	-336	-199	-289	-114	-202
Sep	-244	-344	-198	-296	-114	-209
Oct	-170	-316	-125	-268	-43	-182
Nov	-77	-235	-34	-188	47	-105
Dec	-44	-206	0	-159	82	-76

291 GISBORNE AIRPORT LAT 38 40 S LONG 177 59 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-214	-230	-81	51	70	43	-94	-311	123	134
Feb	-224	-243	-131	31	68	21	-102	-117	139	151
Mar	-232	-256	-240	-28	32	-22	-194	-174	132	147
Apr	-319	-340	-361	-142	-53	-108	-273	-269	158	165
May	-398	-431	-437	-236	-155	-182	-332	-353	146	183
Jun	-463	-484	-491	-333	-252	-258	-392	-365	176	223
Jul	-473	-474	-498	-312	-242	-284	-425	-552	169	189
Aug	-426	-459	-471	-282	-187	-263	-393	-451	166	197
Sep	-410	-431	-450	-236	-159	-227	-373	-350	179	191
Oct	-345	-352	-351	-128	-94	-133	-230	-274	154	154
Nov	-301	-324	-202	-62	-30	-54	-170	-357	132	132
Dec	-262	-287	-125	-1	35	3	-119	-385	136	137

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	26	-166	72	-120	161	-38
Feb	15	-198	61	-151	151	-69
Mar	-51	-242	-8	-194	78	-111
Apr	-144	-339	-99	-291	-18	-205
May	-226	-421	-180	-374	-97	-287
Jun	-309	-478	-262	-430	-177	-343
Jul	-316	-482	-269	-435	-184	-348
Aug	-281	-454	-234	-407	-150	-320
Sep	-249	-429	-203	-382	-120	-295
Oct	-144	-348	-101	-300	-22	-214
Nov	-66	-270	-24	-223	54	-138
Dec	-7	-213	36	-167	122	-84

308 NEW PLYMOUTH AIRPORT LAT 39 01 S LONG 174 11 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-292	-315	-184	-34	11	-11	-124	*	149	120
Feb	-283	-306	-216	-18	30	-1	-99	*	151	124
Mar	-298	-313	-323	-87	-5	-34	-178	*	139	131
Apr	-381	-408	-415	-197	-129	-152	-333	*	157	163
May	-467	-466	-465	-295	-244	-268	-428	*	160	193
Jun	-516	-544	-542	-394	-297	-312	-453	*	172	215
Jul	-508	-532	-555	-393	-317	-348	-488	*	205	215
Aug	-507	-526	-534	-353	-272	-308	-458	*	189	224
Sep	-506	-502	-505	-328	-249	-280	-428	*	169	179
Oct	-451	-477	-469	-243	-176	-208	-317	*	165	162
Nov	-388	-405	-331	-154	-90	-119	-174	*	174	131
Dec	-348	-380	-247	-93	-55	-86	-164	*	162	151

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	-24	-263	19	-216	102	-131
Feb	-9	-268	35	-221	121	-135
Mar	-74	-311	-30	-263	52	-176
Apr	-203	-401	-157	-353	-74	-266
May	-308	-466	-261	-418	-175	-331
Jun	-364	-534	-317	-487	-231	-399
Jul	-386	-532	-339	-484	-252	-397
Aug	-348	-522	-301	-475	-215	-388
Sep	-321	-504	-274	-457	-190	-369
Oct	-235	-465	-189	-417	-107	-330
Nov	-127	-374	-82	-326	-2	-240
Dec	-86	-324	-42	-276	39	-190

401 OHAKEA LAT 40 12 S LONG 175 23 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-263	-265	-168	-77	-35	-67	-171	-269	156	151
Feb	-244	-252	-162	-46	-8	-42	-162	-250	147	145
Mar	-258	-266	-283	-118	-48	-90	-237	-251	157	171
Apr	-321	-332	-344	-185	-123	-185	-311	-310	162	179
May	-395	-412	-429	-297	-258	-288	-372	-374	166	207
Jun	-440	-443	-457	-339	-276	-306	-382	-417	186	204
Jul	-420	-411	-444	-321	-278	-323	-388	-414	177	210
Aug	-413	-417	-420	-305	-264	-311	-396	-404	182	191
Sep	-403	-393	-412	-287	-259	-306	-408	-403	185	198
Oct	-383	-379	-388	-236	-207	-241	-308	-364	185	183
Nov	-340	-354	-284	-173	-118	-147	-241	-340	180	177
Dec	-291	-307	-205	-112	-70	-101	-200	-290	168	173

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	-88	-241	-43	-194	38	-110
Feb	-64	-227	-21	-180	60	-97
Mar	-123	-265	-78	-217	3	-133
Apr	-201	-327	-155	-279	-73	-193
May	-304	-402	-256	-355	-172	-268
Jun	-326	-439	-279	-392	-194	-305
Jul	-327	-422	-281	-375	-195	-288
Aug	-319	-413	-272	-366	-187	-279
Sep	-315	-403	-268	-355	-183	-268
Oct	-248	-378	-202	-331	-119	-245
Nov	-170	-329	-125	-282	-43	-197
Dec	-121	-273	-77	-225	5	-142

417 PARAPARAUMU AIRPORT LAT 40 54 S LONG 174 59 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	*	-282	-162	-75	-30	-41	-102	-301	*	115
Feb	*	-268	-172	-52	-12	-35	-112	-184	*	127
Mar	*	-271	-233	-81	-40	-54	-182	-160	*	142
Apr	*	-314	-334	-141	-119	-147	-288	-302	*	180
May	*	-399	-419	-282	-262	-269	-377	-433	*	185
Jun	*	-446	-452	-315	-280	-322	-429	-482	*	226
Jul	*	-433	-433	-302	-268	-307	-401	-361	*	214
Aug	*	-427	-442	-282	-280	-308	-398	*	*	215
Sep	*	-422	-447	-282	-259	-289	-392	*	*	196
Oct	*	-414	-407	-252	-188	-205	-291	*	*	150
Nov	*	-355	-273	-169	-107	-109	-185	*	*	150
Dec	*	-328	-207	-117	-71	-88	-150	*	*	136

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	-55	-221	-12	-174	68	-89
Feb	-42	-212	2	-165	84	-82
Mar	-88	-244	-43	-196	40	-113
Apr	-174	-323	-128	-275	-44	-189
May	-297	-411	-250	-363	-165	-276
Jun	-336	-451	-290	-403	-205	-317
Jul	-320	-431	-273	-384	-188	-297
Aug	-317	-435	-271	-388	-186	-301
Sep	-305	-435	-259	-388	-174	-301
Oct	-233	-410	-187	-363	-105	-276
Nov	-133	-311	-88	-264	-8	-179
Dec	-97	-267	-53	-220	26	-134

434 KELBURN LAT 41 17 S LONG 174 46 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-361	-362	-251	-144	-99	-125	-241	-380	195	174
Feb	-347	-349	-257	-146	-86	-140	-260	-370	194	186
Mar	-359	-360	-343	-187	-134	-179	-341	-367	210	188
Apr	-417	-415	-417	-257	-209	-260	-448	-416	229	229
May	-498	-508	-519	-394	-352	-385	-510	-488	234	229
Jun	-537	-554	-550	-437	-392	-444	-556	-540	285	287
Jul	-516	-518	-523	-400	-385	-407	-528	-515	265	277
Aug	-520	-525	-522	-373	-363	-407	-552	-537	271	271
Sep	-531	-548	-533	-397	-369	-416	-541	-559	252	252
Oct	-506	-511	-507	-348	-287	-313	-425	-518	249	209
Nov	-465	-458	-364	-260	-207	-247	-342	-461	218	194
Dec	-437	-431	-307	-202	-161	-191	-307	-453	227	192

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	-152	-338	-107	-290	-24	-205
Feb	-158	-331	-112	-283	-29	-197
Mar	-210	-357	-165	-309	-81	-223
Apr	-293	-417	-247	-368	-162	-282
May	-410	-503	-363	-456	-277	-368
Jun	-457	-545	-410	-498	-324	-411
Jul	-430	-518	-383	-470	-297	-383
Aug	-424	-526	-377	-479	-291	-392
Sep	-431	-543	-384	-495	-298	-408
Oct	-343	-510	-297	-463	-213	-375
Nov	-264	-437	-218	-389	-134	-303
Dec	-215	-407	-170	-359	-87	-272

436 WELLINGTON AIRPORT LAT 41 20 S LONG 174 49 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-349	-395	-255	-134	-123	-153	-218	-385	175	135
Feb	-316	-323	-230	-111	-69	-102	-204	-312	144	130
Mar	-392	-420	-405	-226	-190	-218	-343	-374	276	242
Apr	-484	-493	-473	-360	-304	-317	-479	-454	288	294
May	-457	-439	-475	-372	-318	-335	-507	-473	220	226
Jun	-557	-551	-551	-417	-391	-452	-536	-567	315	319
Jul	-556	-550	-573	-444	-416	-435	-550	-559	261	250
Aug	-548	-557	-551	-444	-382	-439	-584	-550	256	256
Sep	-500	-466	-495	-330	-321	-350	-495	-509	220	180
Oct	-515	-505	-520	-330	-271	-300	-403	-487	173	167
Nov	-480	-491	-412	-279	-213	-237	-350	-462	154	102
Dec	-324	-331	-187	-108	-79	-92	-160	-322	192	140

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	-158	-346	-115	-298	-39	-210
Feb	-121	-295	-78	-247	-1	-161
Mar	-244	-398	-199	-349	-118	-263
Apr	-365	-476	-318	-428	-235	-341
May	-382	-461	-335	-413	-248	-325
Jun	-449	-556	-402	-508	-317	-421
Jul	-461	-560	-414	-512	-328	-425
Aug	-462	-551	-415	-504	-329	-417
Sep	-373	-492	-326	-445	-241	-358
Oct	-326	-506	-279	-458	-196	-370
Nov	-270	-461	-223	-413	-136	-325
Dec	-110	-291	-68	-243	13	-158

545 NELSON AIRPORT LAT 41 17 S LONG 173 14 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-226	-219	-63	31	3	-27	-104	-211	138	90
Feb	-164	-170	-69	70	28	-16	-95	-174	118	84
Mar	-203	-200	-198	0	4	-63	-173	-198	135	105
Apr	-247	-239	-250	-62	-40	-105	-254	-243	144	134
May	-297	-295	-302	-136	-114	-170	-309	-280	153	181
Jun	-326	-314	-327	-180	-106	-147	-292	-356	172	182
Jul	-295	-296	-302	-145	-101	-176	-286	-319	152	184
Aug	-283	-296	-289	-115	-100	-195	-288	-281	136	147
Sep	-308	-293	-293	-114	-141	-211	-299	-308	156	144
Oct	-308	-297	-294	-102	-122	-180	-240	-314	174	129
Nov	-285	-275	-184	-77	-91	-128	-187	-260	177	105
Dec	-217	-232	-107	-23	-51	-76	-152	-226	126	108

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	-24	-172	17	-126	96	-43
Feb	-2	-140	40	-94	123	-14
Mar	-57	-200	-14	-152	67	-71
Apr	-115	-245	-71	-197	11	-113
May	-182	-295	-137	-247	-54	-161
Jun	-181	-328	-136	-281	-53	-195
Jul	-177	-301	-132	-254	-50	-168
Aug	-175	-288	-129	-240	-47	-154
Sep	-191	-300	-146	-252	-64	-166
Oct	-161	-302	-116	-254	-36	-169
Nov	-120	-243	-77	-196	0	-114
Dec	-75	-187	-33	-140	45	-57

614 HOKITIKA AIRPORT LAT 42 43 S LONG 170 59 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-193	-206	-119	-17	-29	-49	-132	*	132	109
Feb	-186	-173	-133	5	6	-26	-89	*	132	102
Mar	-208	-212	-226	-58	-26	-59	-160	*	134	120
Apr	-257	-271	-279	-133	-68	-134	-242	*	148	147
May	-315	-336	-363	-226	-132	-170	-286	*	165	182
Jun	-386	-381	-386	-264	-161	-156	-299	*	177	190
Jul	-380	-371	-390	-266	-183	-180	-312	*	163	199
Aug	-359	-371	-388	-233	-172	-213	-317	*	160	197
Sep	-318	-309	-335	-171	-148	-198	-297	*	163	160
Oct	-302	-306	-311	-161	-142	-179	-250	*	168	150
Nov	-266	-267	-222	-109	-88	-117	-221	*	160	132
Dec	-226	-247	-166	-80	-57	-84	-160	*	145	118

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	-43	-171	-1	-124	82	-44
Feb	-15	-162	29	-115	113	-36
Mar	-74	-216	-30	-168	52	-86
Apr	-144	-269	-100	-221	-17	-136
May	-204	-337	-158	-289	-76	-203
Jun	-220	-385	-174	-337	-91	-250
Jul	-235	-380	-189	-333	-106	-246
Aug	-234	-373	-188	-326	-105	-239
Sep	-204	-321	-158	-274	-78	-187
Oct	-181	-307	-137	-259	-58	-173
Nov	-114	-247	-72	-199	6	-116
Dec	-80	-210	-39	-163	39	-81

677 KAIKOURA AIRPORT LAT 42 25 S LONG 173 41 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	*	*	-127	-43	-26	-44	-135	*	*	210
Feb	*	*	-131	-28	-34	-57	-173	*	*	205
Mar	*	*	-241	-73	-66	-86	-242	*	*	226
Apr	*	*	-309	-151	-124	-164	-329	*	*	240
May	*	*	-378	-248	-219	-265	-409	*	*	261
Jun	*	*	-440	-319	-282	-321	-442	*	*	333
Jul	*	*	-432	-320	-264	-324	-453	*	*	311
Aug	*	*	-462	-303	-300	-338	-471	*	*	318
Sep	*	*	-405	-261	-233	-277	-409	*	*	294
Oct	*	*	-375	-185	-159	-174	-271	*	*	248
Nov	*	*	-235	-120	-92	-100	-145	*	*	224
Dec	*	*	-148	-64	-57	-76	-182	*	*	201

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	-48	-127	-2	-82	87	5
Feb	-56	-131	-9	-85	80	-1
Mar	-114	-241	-67	-194	21	-114
Apr	-192	-309	-146	-261	-61	-179
May	-285	-378	-239	-330	-154	-245
Jun	-341	-442	-295	-395	-210	-309
Jul	-340	-432	-294	-385	-210	-299
Aug	-353	-462	-307	-414	-222	-328
Sep	-295	-405	-249	-358	-163	-272
Oct	-195	-375	-148	-328	-62	-244
Nov	-108	-235	-62	-190	23	-108
Dec	-75	-148	-29	-103	59	-17

780 CHRISTCHURCH AIRPORT LAT 43 29 S LONG 172 32 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-286	-268	-151	-84	-24	-58	-189	-298	139	159
Feb	-266	-253	-167	-65	1	-48	-189	-294	152	177
Mar	-288	-281	-275	-118	-56	-104	-268	-299	144	177
Apr	-320	-326	-315	-170	-130	-170	-354	-343	168	191
May	-380	-368	-386	-275	-230	-263	-374	-368	179	229
Jun	-402	-419	-427	-289	-260	-298	-420	-421	240	256
Jul	-408	-420	-440	-313	-277	-319	-441	-439	248	252
Aug	-448	-432	-420	-292	-284	-336	-475	-437	223	250
Sep	-426	-425	-427	-296	-243	-295	-414	-430	189	237
Oct	-391	-379	-364	-222	-165	-204	-316	-400	188	199
Nov	-342	-332	-234	-150	-82	-128	-245	-351	170	177
Dec	-301	-300	-188	-112	-56	-103	-204	-324	152	170

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	-89	-251	-45	-203	35	-119
Feb	-75	-245	-31	-198	52	-113
Mar	-136	-286	-91	-238	-8	-153
Apr	-206	-326	-160	-278	-77	-192
May	-286	-375	-239	-328	-156	-241
Jun	-317	-417	-271	-370	-187	-283
Jul	-337	-427	-291	-380	-207	-293
Aug	-347	-434	-301	-387	-216	-300
Sep	-312	-427	-266	-379	-182	-293
Oct	-227	-384	-181	-336	-99	-249
Nov	-151	-315	-107	-268	-26	-182
Dec	-119	-278	-74	-231	6	-146

844 INVERCARGILL AIRPORT LAT 46 25 S LONG 168 20 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-389	-391	-309	-222	-172	-215	-316	-430	217	238
Feb	-351	-352	-313	-198	-146	-196	-308	-390	215	214
Mar	-337	-338	-357	-211	-154	-219	-327	-369	204	213
Apr	-389	-388	-412	-293	-253	-295	-426	-418	231	235
May	-484	-489	-493	-430	-380	-393	-494	-499	279	266
Jun	-461	-475	-479	-447	-386	-398	-464	-457	288	239
Jul	-450	-459	-483	-421	-350	-367	-466	-459	237	227
Aug	-419	-402	-397	-338	-302	-331	-459	-434	214	212
Sep	-467	-456	-459	-342	-311	-337	-446	-485	224	227
Oct	-471	-472	-469	-358	-317	-334	-443	-497	243	256
Nov	-433	-436	-379	-282	-245	-290	-395	-473	237	250
Dec	-371	-357	-280	-201	-161	-212	-316	-404	212	212

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	-231	-380	-185	-332	-101	-247
Feb	-212	-352	-166	-304	-81	-219
Mar	-228	-350	-182	-303	-98	-217
Apr	-317	-401	-270	-354	-186	-267
May	-424	-491	-377	-444	-292	-357
Jun	-423	-468	-376	-421	-291	-335
Jul	-401	-463	-354	-416	-269	-329
Aug	-357	-413	-311	-366	-227	-279
Sep	-359	-467	-312	-419	-227	-333
Oct	-363	-477	-316	-430	-232	-343
Nov	-303	-430	-257	-383	-174	-297
Dec	-223	-353	-177	-306	-95	-220

890 DUNEDIN AIRPORT LAT 45 56 S LONG 170 12 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-292	-287	-187	-113	-86	-102	-191	-280	190	192
Feb	-266	-260	-193	-80	-50	-96	-179	-273	173	193
Mar	-283	-277	-284	-126	-62	-126	-235	-277	162	198
Apr	-338	-346	-359	-203	-158	-201	-332	-349	198	224
May	-441	-444	-427	-358	-292	-304	-412	-440	260	270
Jun	-451	-454	-441	-379	-311	-335	-464	-428	259	277
Jul	-454	-445	-458	-357	-289	-318	-437	-443	257	268
Aug	-425	-421	-422	-308	-289	-339	-441	-431	247	273
Sep	-399	-388	-401	-279	-236	-284	-355	-417	220	251
Oct	-400	-382	-382	-246	-208	-254	-320	-391	224	245
Nov	-360	-348	-276	-179	-152	-187	-267	-365	229	214
Dec	-311	-315	-204	-113	-95	-133	-220	-321	189	187

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	-123	-262	-78	-214	7	-131
Feb	-101	-248	-56	-201	30	-118
Mar	-137	-280	-92	-232	-8	-148
Apr	-223	-348	-177	-301	-93	-215
May	-342	-438	-295	-391	-210	-304
Jun	-372	-443	-325	-396	-240	-310
Jul	-350	-450	-303	-403	-219	-316
Aug	-344	-425	-298	-378	-213	-291
Sep	-289	-401	-242	-354	-158	-267
Oct	-257	-389	-211	-341	-128	-255
Nov	-196	-337	-151	-290	-68	-205
Dec	-140	-288	-95	-240	-13	-156

944 CAMPBELL ISLAND LAT 52 33 S LONG 169 09 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-721	-729	-653	-542	-482	-501	-600	-689	225	182
Feb	-752	-745	-709	-585	-535	-555	-672	-750	235	210
Mar	-736	-749	-741	-624	-580	-609	-705	-724	249	209
Apr	-782	-789	-782	-693	-657	-689	-790	-776	261	246
May	-818	-851	-841	-819	-739	-776	-825	-830	320	282
Jun	-843	-845	-861	-855	-775	-809	-854	-829	325	325
Jul	-782	-787	-778	-771	-720	-767	-804	-790	325	305
Aug	-751	-766	-768	-711	-668	-698	-762	-757	283	263
Sep	-825	-819	-816	-737	-696	-733	-815	-829	281	248
Oct	-860	-873	-867	-768	-684	-727	-801	-865	287	253
Nov	-843	-859	-763	-697	-647	-603	-734	-817	252	192
Dec	-687	-706	-618	-526	-454	-508	-589	-690	242	192

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	-531	-698	-484	-651	-396	-564
Feb	-587	-739	-539	-691	-452	-604
Mar	-630	-738	-582	-690	-495	-603
Apr	-707	-782	-660	-735	-573	-648
May	-790	-835	-742	-788	-656	-701
Jun	-823	-845	-776	-797	-690	-711
Jul	-766	-784	-718	-737	-632	-651
Aug	-710	-760	-663	-713	-576	-627
Sep	-745	-822	-698	-775	-612	-688
Oct	-745	-866	-697	-819	-611	-732
Nov	-670	-821	-623	-773	-536	-687
Dec	-519	-674	-472	-627	-385	-540

986 CHATHAM ISLAND LAT 43 57 S LONG 176 34 W DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-437	*	-287	-206	-175	-225	-393	-422	211	149
Feb	-326	*	-270	-197	-156	-215	-396	-318	139	159
Mar	-487	*	-366	-266	-228	-290	-442	*	171	170
Apr	*	-370	-467	-346	-330	-382	-489	*	*	194
May	-483	-649	-577	-473	-468	-512	-595	*	211	234
Jun	-611	*	-633	-529	-502	-569	-630	*	235	252
Jul	-671	-615	-639	-511	-510	-559	-622	*	148	250
Aug	*	-867	-615	-496	-490	-550	-636	*	*	227
Sep	-735	-699	-574	-452	-410	-467	-591	-592	*	207
Oct	*	-538	-490	-396	-359	-400	-528	*	*	173
Nov	*	-724	-418	-348	-305	-344	-424	*	*	184
Dec	*	*	-343	-253	-204	-247	-413	*	*	175

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	-220	-308	-174	-260	-94	-175
Feb	-212	-279	-166	-233	-87	-147
Mar	-304	-372	-257	-324	-173	-238
Apr	-387	-467	-339	-419	-253	-332
May	-512	-569	-464	-522	-378	-434
Jun	-557	-632	-510	-585	-424	-498
Jul	-551	-639	-503	-591	-417	-504
Aug	-543	-616	-495	-569	-409	-481
Sep	-480	-575	-433	-528	-346	-440
Oct	-419	-490	-371	-443	-285	-356
Nov	-339	-424	-291	-376	-207	-291
Dec	-247	-343	-201	-296	-119	-210

997 RAOUL ISLAND LAT 29 15 S LONG 177 55 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.1 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-121	-119	7	105	153	89	-51	-128	90	123
Feb	-127	-127	-27	88	128	70	-109	-132	96	108
Mar	-138	-140	-79	65	110	46	-145	-150	104	127
Apr	-137	-134	-146	39	85	30	-138	-136	96	107
May	-166	-160	-163	-10	27	-28	-172	-171	107	109
Jun	-205	-206	-206	-65	-34	-73	-207	-211	129	128
Jul	-225	-229	-227	-77	-42	-94	-225	-217	126	129
Aug	-214	-214	-231	-70	-21	-66	-215	-209	129	123
Sep	-206	-212	-218	-44	0	-44	-210	-205	129	122
Oct	-187	-192	-140	15	52	19	-112	-169	122	107
Nov	-153	-157	-65	54	94	59	-56	-162	98	100
Dec	-113	-125	3	104	156	112	0	-113	86	117

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	74	-91	123	-45	223	39
Feb	44	-103	92	-58	189	26
Mar	19	-127	67	-81	161	0
Apr	4	-138	49	-92	140	-12
May	-46	-165	0	-117	84	-38
Jun	-95	-207	-50	-159	32	-78
Jul	-110	-224	-64	-176	19	-95
Aug	-93	-217	-48	-169	36	-88
Sep	-74	-210	-29	-162	54	-81
Oct	-6	-171	38	-125	126	-45
Nov	40	-134	86	-87	179	-6
Dec	95	-87	147	-42	249	41

011 KAITAIA AIRPORT LAT 35 04 S LONG 173 17 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-38	-48	74	166	228	187	56	*	49	91
Feb	-38	-55	22	156	210	163	35	*	50	78
Mar	-48	-58	-60	104	165	117	-25	*	46	81
Apr	-79	-85	-89	63	89	45	-83	*	53	85
May	-99	-110	-118	23	39	1	-106	*	63	86
Jun	-134	-139	-142	-26	1	-33	-130	*	67	88
Jul	-146	-153	-155	-28	-11	-54	-147	*	71	92
Aug	-133	-139	-147	-12	4	-41	-140	*	74	74
Sep	-128	-133	-148	-2	30	-2	-119	*	77	67
Oct	-117	-127	-128	17	72	47	-51	*	65	72
Nov	-77	-85	-45	70	124	104	13	*	62	75
Dec	-66	-71	33	104	165	129	18	*	58	80

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	178	-1	238	46	358	139
Feb	160	-23	217	21	335	108
Mar	92	-56	145	-10	251	67
Apr	28	-84	76	-38	171	39
May	-11	-109	34	-64	123	18
Jun	-47	-138	-2	-92	82	-9
Jul	-60	-151	-15	-105	68	-21
Aug	-47	-140	-4	-94	80	-11
Sep	-23	-137	20	-92	105	-8
Oct	23	-124	67	-78	158	4
Nov	93	-67	143	-22	248	59
Dec	123	-34	177	11	286	98

112 WHENUAPAI AIRPORT LAT 36 47 S LONG 174 38 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-20	-39	100	165	226	192	77	-27	48	99
Feb	-53	-33	67	173	228	192	56	-21	53	91
Mar	-40	-33	-27	140	175	126	-26	-28	46	89
Apr	-79	-64	-69	85	103	62	-69	-55	57	85
May	-71	-90	-99	31	34	3	-95	-93	66	89
Jun	-113	-108	-115	-14	14	-23	-110	-104	80	101
Jul	-139	-130	-126	-13	2	-38	-128	-118	89	90
Aug	-97	-109	-111	17	25	-26	-127	-111	72	84
Sep	-87	-131	-117	6	38	3	-116	-113	70	81
Oct	-113	-128	-93	41	81	52	-37	-93	71	77
Nov	-62	-69	-13	80	135	114	18	-55	61	83
Dec	-42	-42	66	112	177	146	52	-54	49	91

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	165	52	223	102	340	206
Feb	162	31	221	78	339	179
Mar	104	-28	158	15	268	101
Apr	45	-63	94	-19	192	62
May	-7	-95	39	-51	128	31
Jun	-33	-109	12	-64	98	17
Jul	-45	-123	1	-77	85	4
Aug	-28	-110	17	-65	103	16
Sep	-17	-115	27	-70	113	13
Oct	34	-97	80	-52	174	29
Nov	87	-35	137	9	239	96
Dec	122	28	175	76	283	175

115 AUCKLAND CITY LAT 36 51 S LONG 174 46 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-52	-49	88	137	184	150	43	-57	50	87
Feb	-38	-39	65	143	191	148	17	-49	47	79
Mar	-42	-40	-32	112	147	96	-52	-48	48	80
Apr	-74	-70	-74	64	78	36	-94	-75	58	86
May	-92	-94	-99	26	29	-19	-115	-91	66	92
Jun	-117	-122	-123	-23	-2	-44	-130	-118	74	99
Jul	-128	-134	-136	-27	-15	-61	-147	-129	73	91
Aug	-125	-122	-120	-7	4	-46	-149	-123	74	81
Sep	-129	-127	-125	-5	25	-17	-149	-133	73	77
Oct	-106	-107	-100	14	59	32	-68	-116	66	69
Nov	-82	-83	-15	52	104	76	-15	-91	61	82
Dec	-71	-69	54	92	142	107	12	-83	59	84

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	129	-17	183	29	293	115
Feb	125	-15	179	30	289	117
Mar	76	-40	128	4	231	85
Apr	21	-73	68	-27	161	50
May	-20	-94	26	-50	112	32
Jun	-50	-120	-4	-75	81	8
Jul	-63	-132	-17	-87	66	-3
Aug	-50	-123	-5	-78	79	6
Sep	-37	-128	7	-83	91	0
Oct	9	-107	53	-62	141	20
Nov	54	-68	102	-22	198	59
Dec	88	-42	138	5	240	88

119 AUCKLAND AIRPORT LAT 36 58 S LONG 174 47 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-62	-62	68	157	210	164	41	-66	53	92
Feb	-46	-46	46	169	218	159	15	-56	48	92
Mar	-42	-46	-40	121	167	112	-47	-51	48	87
Apr	-78	-86	-88	58	100	45	-103	-83	62	106
May	-111	-110	-117	7	41	-15	-128	-115	68	111
Jun	-136	-139	-136	-33	10	-39	-148	-128	75	117
Jul	-145	-148	-154	-43	1	-39	-157	-146	70	110
Aug	-138	-143	-144	-13	19	-31	-157	-145	72	93
Sep	-146	-147	-145	-4	39	-8	-152	-149	70	88
Oct	-129	-129	-127	26	71	35	-68	-133	64	82
Nov	-99	-102	-34	71	125	91	-16	-105	60	86
Dec	-86	-88	41	112	169	127	20	-90	58	95

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	143	-31	199	16	313	100
Feb	140	-26	197	19	311	104
Mar	88	-45	141	-1	248	81
Apr	25	-84	74	-38	168	40
May	-24	-113	23	-68	111	13
Jun	-52	-135	-6	-89	81	-7
Jul	-59	-148	-13	-102	73	-19
Aug	-45	-143	0	-96	86	-13
Sep	-31	-147	14	-100	100	-17
Oct	16	-129	61	-83	151	-1
Nov	68	-85	117	-39	215	41
Dec	107	-56	159	-9	266	73

246 ROTORUA AIRPORT LAT 38 10 S LONG 176 15 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-67	-60	76	167	225	187	55	*	64	114
Feb	-51	-51	55	166	233	176	23	*	58	109
Mar	-47	-52	-35	134	182	126	-58	*	54	108
Apr	-85	-95	-87	57	104	55	-95	*	70	112
May	-120	-122	-115	17	35	-4	-127	*	77	112
Jun	-132	-143	-140	-25	-8	-36	-142	*	89	112
Jul	-133	-127	-138	-16	-16	-46	-147	*	77	110
Aug	-125	-131	-130	-2	28	-13	-145	*	83	109
Sep	-136	-129	-130	5	51	0	-146	*	79	98
Oct	-115	-116	-112	28	93	60	-59	*	74	99
Nov	-96	-88	-8	97	151	105	8	*	67	103
Dec	-77	-78	48	123	185	136	28	*	68	109

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	160	-17	218	29	335	121
Feb	153	-16	211	30	328	122
Mar	96	-45	151	-2	259	84
Apr	30	-89	79	-45	175	37
May	-20	-119	27	-74	117	7
Jun	-53	-138	-7	-92	80	-11
Jul	-56	-133	-10	-86	76	-6
Aug	-33	-128	14	-82	103	-2
Sep	-22	-132	23	-86	110	-5
Oct	31	-114	78	-69	171	12
Nov	94	-61	145	-16	250	68
Dec	123	-36	177	10	286	99

291 GISBORNE AIRPORT LAT 38 40 S LONG 177 59 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-58	-68	82	202	225	186	42	-106	54	108
Feb	-61	-72	38	182	222	163	24	-5	59	122
Mar	-70	-83	-61	116	178	118	-56	-42	61	115
Apr	-110	-122	-132	28	110	52	-86	-86	68	112
May	-157	-172	-175	-27	45	12	-121	-129	68	112
Jun	-189	-199	-202	-83	-16	-37	-152	-138	80	118
Jul	-194	-195	-208	-66	-7	-48	-166	-203	73	105
Aug	-172	-189	-196	-48	33	-33	-152	-176	74	117
Sep	-158	-171	-182	-6	61	5	-143	-117	76	109
Oct	-126	-134	-117	60	104	62	-42	-87	68	97
Nov	-103	-116	-5	110	147	120	5	-136	61	95
Dec	-82	-96	56	159	200	160	40	-128	59	103

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	173	-5	232	42	350	133
Feb	160	-30	218	16	336	102
Mar	91	-71	144	-26	251	55
Apr	26	-121	75	-75	170	5
May	-23	-168	23	-121	110	-38
Jun	-72	-196	-26	-149	59	-65
Jul	-72	-199	-27	-152	57	-68
Aug	-50	-186	-4	-140	81	-55
Sep	-21	-170	25	-123	113	-39
Oct	48	-124	96	-78	192	2
Nov	108	-70	160	-24	265	58
Dec	153	-30	210	17	323	104

308 NEW PLYMOUTH AIRPORT LAT 39 01 S LONG 174 11 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-91	-103	18	133	185	160	51	*	62	97
Feb	-87	-99	-7	144	199	161	49	*	63	96
Mar	-96	-104	-104	75	152	117	-34	*	60	99
Apr	-131	-145	-149	11	70	44	-112	*	64	98
May	-174	-174	-175	-55	1	-21	-156	*	65	106
Jun	-203	-215	-216	-111	-32	-51	-173	*	71	114
Jul	-197	-210	-221	-105	-37	-67	-184	*	84	112
Aug	-197	-207	-213	-77	-8	-45	-172	*	73	114
Sep	-194	-192	-195	-48	17	-13	-154	*	62	87
Oct	-167	-180	-176	2	60	36	-60	*	65	82
Nov	-136	-146	-77	52	112	89	12	*	70	82
Dec	-116	-132	-9	99	147	116	36	*	64	101

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	147	-58	203	-13	318	70
Feb	153	-64	211	-20	328	61
Mar	80	-101	131	-55	237	22
Apr	3	-142	50	-94	142	-14
May	-58	-174	-12	-127	73	-42
Jun	-92	-211	-47	-164	38	-78
Jul	-98	-209	-53	-162	31	-76
Aug	-76	-206	-30	-158	55	-73
Sep	-50	-194	-5	-146	79	-61
Oct	10	-174	56	-127	145	-41
Nov	77	-119	126	-73	227	9
Dec	113	-85	166	-39	273	43

401 OHAKEA LAT 40 12 S LONG 175 23 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-80	-84	30	110	154	123	19	-78	64	103
Feb	-73	-80	21	125	168	126	9	-70	64	114
Mar	-80	-85	-87	57	129	84	-69	-72	68	117
Apr	-112	-119	-126	8	71	21	-103	-104	70	108
May	-151	-159	-167	-66	-15	-40	-135	-140	70	109
Jun	-176	-179	-187	-94	-34	-56	-145	-162	80	104
Jul	-169	-165	-180	-81	-25	-68	-151	-163	77	113
Aug	-165	-169	-170	-62	-12	-52	-154	-158	79	95
Sep	-155	-152	-163	-38	12	-28	-153	-151	77	98
Oct	-143	-143	-143	3	47	20	-63	-129	77	94
Nov	-121	-129	-55	47	101	76	-15	-115	77	103
Dec	-96	-103	9	86	134	104	9	-90	70	111

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	102	-53	153	-7	258	77
Feb	107	-51	160	-5	266	80
Mar	51	-81	100	-35	199	47
Apr	-1	-115	46	-69	136	12
May	-64	-154	-19	-108	64	-25
Jun	-82	-176	-37	-130	47	-46
Jul	-81	-169	-36	-123	48	-39
Aug	-70	-166	-25	-119	58	-36
Sep	-52	-155	-7	-109	77	-26
Oct	2	-139	46	-94	133	-11
Nov	52	-105	99	-59	195	24
Dec	83	-70	133	-25	234	61

417 PARAPARAUMU AIRPORT LAT 40 54 S LONG 174 59 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	*	-86	43	105	152	134	63	-96	*	88
Feb	*	-81	24	120	163	131	37	-45	*	101
Mar	*	-83	-61	84	128	102	-41	-31	*	95
Apr	*	-103	-114	48	71	38	-94	-92	*	112
May	*	-145	-156	-54	-19	-34	-135	-155	*	97
Jun	*	-169	-173	-76	-31	-64	-163	-191	*	117
Jul	*	-168	-168	-67	-24	-58	-153	-133	*	117
Aug	*	-162	-170	-40	-19	-54	-150	*	*	109
Sep	*	-158	-169	-30	6	-24	-144	*	*	95
Oct	*	-153	-144	-8	49	35	-60	*	*	77
Nov	*	-122	-40	44	99	90	-4	*	*	92
Dec	*	-108	19	84	127	109	39	*	*	91

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	123	-20	176	27	285	115
Feb	126	-24	180	22	291	110
Mar	70	-68	121	-23	226	58
Apr	16	-108	64	-63	158	19
May	-60	-151	-15	-104	69	-22
Jun	-84	-172	-38	-126	48	-42
Jul	-76	-167	-29	-121	56	-37
Aug	-66	-166	-19	-120	66	-37
Sep	-48	-164	-2	-118	84	-33
Oct	5	-148	50	-102	139	-18
Nov	71	-79	119	-32	219	52
Dec	101	-44	152	2	257	89

434 KELBURN LAT 41 17 S LONG 174 46 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-117	-118	1	71	119	92	-16	-123	77	111
Feb	-111	-113	-14	68	121	78	-34	-119	76	115
Mar	-115	-117	-104	26	77	38	-115	-119	80	105
Apr	-140	-142	-143	-17	29	-14	-159	-140	88	128
May	-180	-186	-191	-111	-62	-89	-190	-178	90	114
Jun	-202	-209	-208	-137	-84	-125	-212	-202	109	146
Jul	-196	-199	-199	-113	-77	-105	-204	-196	103	142
Aug	-198	-200	-199	-88	-57	-97	-214	-205	105	138
Sep	-199	-206	-200	-84	-39	-79	-208	-208	97	121
Oct	-184	-189	-181	-51	12	-11	-117	-189	95	98
Nov	-166	-164	-79	3	58	33	-63	-163	83	101
Dec	-160	-149	-28	40	85	60	-42	-156	213	104

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	67	-89	115	-43	214	42
Feb	58	-89	108	-43	207	41
Mar	7	-114	54	-68	147	14
Apr	-40	-141	7	-95	96	-12
May	-113	-184	-67	-137	17	-52
Jun	-139	-205	-93	-158	-7	-75
Jul	-125	-197	-77	-150	9	-67
Aug	-114	-200	-67	-154	20	-70
Sep	-103	-203	-56	-157	28	-72
Oct	-42	-186	3	-139	88	-54
Nov	8	-143	53	-96	142	-11
Dec	36	-124	83	-77	176	9

436 WELLINGTON AIRPORT LAT 41 20 S LONG 174 49 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-108	-129	16	76	98	72	5	-121	66	72
Feb	-91	-97	3	80	129	94	-10	-88	54	85
Mar	-129	-142	-127	11	47	23	-111	-119	121	122
Apr	-170	-169	-166	-80	-27	-50	-175	-158	126	156
May	-163	-159	-176	-95	-39	-62	-185	-170	84	116
Jun	-205	-202	-205	-125	-83	-124	-200	-214	124	159
Jul	-207	-204	-217	-133	-97	-118	-208	-213	96	135
Aug	-205	-210	-210	-128	-67	-97	-219	-202	90	117
Sep	-180	-163	-180	-52	-14	-46	-183	-181	80	88
Oct	-184	-180	-177	-29	26	7	-103	-170	59	83
Nov	-162	-169	-93	-11	41	26	-71	-151	53	51
Dec	-101	-107	35	89	127	115	33	-103	72	88

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	62	-85	110	-39	206	44
Feb	74	-68	124	-23	222	56
Mar	-7	-129	39	-83	132	-3
Apr	-83	-166	-38	-119	48	-37
May	-95	-167	-49	-120	36	-35
Jun	-133	-207	-88	-160	-4	-75
Jul	-138	-210	-92	-163	-8	-79
Aug	-128	-207	-82	-160	1	-74
Sep	-73	-176	-28	-130	54	-44
Oct	-24	-178	20	-130	105	-45
Nov	-4	-144	39	-97	125	-13
Dec	91	-69	141	-22	243	62

545 NELSON AIRPORT LAT 41 17 S LONG 173 14 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-62	-61	92	183	177	143	50	-54	57	76
Feb	-35	-38	75	215	197	143	46	-38	50	73
Mar	-53	-53	-50	140	160	91	-31	-50	57	86
Apr	-77	-74	-80	89	119	62	-84	-73	65	101
May	-109	-107	-111	29	71	25	-110	-100	73	113
Jun	-127	-119	-126	-7	73	36	-108	-142	85	118
Jul	-111	-111	-113	20	73	13	-105	-122	75	121
Aug	-105	-112	-108	43	69	-1	-105	-102	68	97
Sep	-113	-107	-107	63	56	9	-99	-110	72	97
Oct	-108	-104	-101	80	82	44	-32	-107	76	76
Nov	-91	-89	-8	98	105	78	6	-80	76	66
Dec	-64	-70	62	144	141	115	18	-64	60	75

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	139	-14	193	33	304	124
Feb	152	-4	209	41	323	135
Mar	90	-51	143	-8	249	76
Apr	46	-76	96	-33	196	49
May	4	-107	51	-62	144	18
Jun	-1	-127	46	-81	139	-2
Jul	0	-113	48	-67	141	11
Aug	2	-107	48	-62	141	17
Sep	7	-109	54	-64	147	17
Oct	43	-105	91	-61	186	22
Nov	72	-60	121	-16	221	70
Dec	105	-23	158	22	263	112

614 HOKITIKA AIRPORT LAT 42 43 S LONG 170 59 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-51	-58	34	131	143	122	30	*	60	79
Feb	-47	-42	12	141	167	131	44	*	58	87
Mar	-58	-62	-67	86	129	92	-20	*	59	91
Apr	-84	-92	-96	25	88	36	-83	*	66	105
May	-118	-129	-141	-44	40	9	-101	*	76	119
Jun	-155	-156	-158	-71	25	16	-115	*	82	129
Jul	-154	-151	-159	-68	11	1	-119	*	79	130
Aug	-143	-149	-158	-31	29	-12	-122	*	74	124
Sep	-119	-117	-130	13	49	14	-98	*	74	94
Oct	-108	-112	-114	23	61	35	-48	*	75	80
Nov	-87	-90	-48	58	102	74	-27	*	71	81
Dec	-68	-80	5	84	124	102	18	*	66	79

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	121	-23	175	22	285	112
Feb	134	-23	190	21	305	111
Mar	73	-63	125	-20	229	64
Apr	16	-91	65	-47	159	34
May	-24	-129	23	-84	114	-1
Jun	-36	-157	11	-110	100	-28
Jul	-44	-155	3	-108	92	-26
Aug	-34	-150	13	-103	101	-22
Sep	-5	-122	41	-77	131	4
Oct	19	-111	65	-67	157	15
Nov	70	-70	119	-27	219	58
Dec	97	-44	148	0	253	88

677 KAIKOURA AIRPORT LAT 42 25 S LONG 173 41 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	*	*	60	142	168	134	43	*	*	143
Feb	*	*	42	149	156	129	-2	*	*	139
Mar	*	*	-66	97	126	96	-63	*	*	152
Apr	*	*	-102	41	80	37	-115	*	*	145
May	*	*	-138	-30	11	-24	-151	*	*	141
Jun	*	*	-167	-75	-21	-55	-166	*	*	181
Jul	*	*	-165	-70	-17	-57	-174	*	*	172
Aug	*	*	-181	-51	-25	-62	-182	*	*	170
Sep	*	*	-149	-14	27	-14	-147	*	*	161
Oct	*	*	-133	38	77	62	-47	*	*	146
Nov	*	*	-25	81	119	102	21	*	*	133
Dec	*	*	41	126	146	121	19	*	*	132

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	136	60	193	112	307	217
Feb	127	42	184	94	299	200
Mar	67	-66	120	-23	228	66
Apr	11	-102	62	-59	161	27
May	-49	-138	-1	-94	91	-11
Jun	-79	-168	-32	-123	60	-41
Jul	-80	-165	-32	-120	59	-38
Aug	-80	-181	-32	-135	60	-53
Sep	-37	-149	12	-104	106	-21
Oct	35	-133	86	-89	186	-4
Nov	94	-25	147	24	255	119
Dec	122	41	177	93	288	196

780 CHRISTCHURCH AIRPORT LAT 43 29 S LONG 172 32 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-94	-87	30	89	153	120	0	-97	61	112
Feb	-84	-80	9	104	170	121	-5	-95	67	128
Mar	-96	-95	-90	57	123	75	-76	-99	66	122
Apr	-113	-117	-115	17	63	24	-133	-123	76	120
May	-149	-142	-152	-61	-7	-33	-146	-142	81	126
Jun	-160	-170	-175	-76	-25	-54	-170	-171	112	144
Jul	-163	-169	-180	-89	-34	-70	-180	-178	114	142
Aug	-181	-174	-168	-61	-29	-68	-195	-176	96	133
Sep	-170	-169	-169	-50	14	-28	-156	-171	83	127
Oct	-151	-146	-140	-1	63	33	-72	-152	82	110
Nov	-126	-122	-38	51	116	82	-21	-127	76	109
Dec	-103	-104	11	80	135	99	2	-111	68	108

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	90	-62	140	-16	241	66
Feb	98	-62	149	-17	253	66
Mar	45	-95	93	-50	190	29
Apr	-7	-117	40	-72	131	9
May	-62	-146	-15	-100	72	-18
Jun	-81	-169	-35	-122	52	-41
Jul	-93	-173	-47	-126	40	-44
Aug	-88	-175	-42	-128	45	-46
Sep	-55	-170	-9	-123	77	-40
Oct	6	-147	52	-101	141	-19
Nov	57	-103	105	-58	201	25
Dec	79	-77	128	-31	226	53

844 INVERCARGILL AIRPORT LAT 46 25 S LONG 168 20 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-138	-140	-53	17	82	47	-47	-151	87	128
Feb	-120	-122	-76	24	83	46	-56	-134	87	125
Mar	-117	-118	-128	-8	58	11	-93	-128	84	119
Apr	-142	-142	-153	-69	-14	-44	-168	-151	94	119
May	-186	-191	-193	-164	-92	-106	-191	-193	110	127
Jun	-184	-192	-195	-182	-104	-117	-188	-182	129	120
Jul	-184	-184	-198	-160	-83	-104	-188	-185	106	116
Aug	-170	-162	-159	-99	-50	-67	-188	-173	96	102
Sep	-185	-183	-185	-85	-31	-48	-157	-190	93	110
Oct	-182	-183	-184	-76	-14	-26	-126	-189	98	116
Nov	-163	-165	-115	-26	37	9	-81	-177	96	121
Dec	-133	-128	-41	25	79	44	-51	-145	88	114

Mean day(0900-1800) and night(2100-0600) HEBIDEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	25	-120	71	-74	163	10
Feb	24	-113	72	-68	165	16
Mar	-8	-123	39	-77	129	5
Apr	-74	-147	-27	-102	59	-19
May	-138	-191	-92	-144	-8	-61
Jun	-148	-188	-101	-141	-18	-60
Jul	-134	-188	-88	-141	-3	-59
Aug	-101	-166	-55	-119	29	-38
Sep	-80	-186	-34	-139	48	-56
Oct	-60	-185	-16	-138	67	-55
Nov	-15	-155	30	-109	116	-25
Dec	24	-112	70	-66	162	18

890 DUNEDIN AIRPORT LAT 45 56 S LONG 170 12 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-97	-97	12	87	119	95	4	-92	84	114
Feb	-85	-84	-16	98	137	93	-1	-89	76	127
Mar	-94	-92	-96	47	116	56	-56	-90	75	133
Apr	-123	-127	-134	-13	44	3	-125	-126	88	132
May	-169	-172	-163	-111	-41	-58	-160	-170	110	137
Jun	-181	-183	-176	-138	-53	-74	-187	-169	116	149
Jul	-182	-178	-184	-118	-42	-68	-175	-175	115	142
Aug	-168	-168	-168	-76	-33	-76	-178	-172	110	144
Sep	-155	-150	-158	-44	16	-32	-123	-162	97	140
Oct	-152	-144	-145	-17	37	3	-79	-147	95	123
Nov	-131	-129	-64	37	77	46	-37	-131	99	119
Dec	-107	-111	-3	86	111	75	-14	-110	84	114

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	76	-68	127	-23	227	63
Feb	82	-68	133	-24	237	61
Mar	41	-93	90	-50	187	32
Apr	-23	-127	25	-82	116	-1
May	-92	-169	-46	-122	40	-40
Jun	-113	-177	-66	-130	20	-49
Jul	-101	-180	-54	-133	33	-51
Aug	-91	-169	-44	-122	43	-41
Sep	-46	-156	0	-110	88	-29
Oct	-14	-147	32	-102	122	-20
Nov	31	-114	78	-69	172	14
Dec	64	-83	113	-38	212	47

944 CAMPBELL ISLAND LAT 52 33 S LONG 169 09 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-270	-273	-194	-134	-75	-95	-194	-261	79	70
Feb	-279	-274	-235	-169	-108	-131	-242	-275	85	85
Mar	-275	-279	-275	-207	-152	-182	-283	-268	90	88
Apr	-294	-297	-294	-260	-212	-238	-314	-292	93	104
May	-314	-327	-322	-348	-269	-298	-318	-318	123	121
Jun	-325	-326	-331	-373	-297	-324	-335	-321	121	142
Jul	-307	-308	-304	-335	-270	-303	-317	-310	123	133
Aug	-293	-298	-299	-287	-234	-261	-302	-296	102	110
Sep	-318	-317	-314	-270	-217	-246	-343	-321	107	105
Oct	-332	-335	-331	-267	-189	-215	-300	-331	106	112
Nov	-323	-329	-259	-221	-152	-139	-251	-313	84	74
Dec	-264	-272	-184	-136	-68	-97	-187	-261	89	74

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	-125	-250	-81	-202	-4	-116
Feb	-163	-265	-116	-218	-35	-132
Mar	-206	-274	-159	-227	-76	-141
Apr	-256	-294	-209	-247	-123	-161
May	-308	-320	-261	-273	-175	-187
Jun	-332	-326	-285	-279	-199	-193
Jul	-306	-307	-259	-260	-173	-175
Aug	-271	-296	-224	-249	-139	-164
Sep	-269	-317	-222	-270	-137	-184
Oct	-243	-332	-196	-285	-112	-199
Nov	-191	-306	-145	-259	-63	-173
Dec	-122	-244	-77	-197	2	-111

986 CHATHAM ISLAND LAT 43 57 S LONG 176 34 W DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-148	*	-12	37	67	22	-108	-143	81	74
Feb	-108	*	-19	31	65	12	-147	-102	56	82
Mar	-168	*	-91	-16	21	-36	-160	*	57	77
Apr	*	-149	-167	-70	-42	-93	-178	*	*	86
May	-186	-268	-215	-142	-118	-165	-225	*	84	102
Jun	-233	*	-243	-173	-140	-202	-245	*	84	111
Jul	-286	-258	-247	-164	-144	-196	-243	*	55	109
Aug	*	-300	-239	-147	-124	-179	-249	*	*	101
Sep	-258	-257	-216	-111	-65	-123	-234	-224	*	85
Oct	*	-224	-141	-67	-25	-68	-200	*	*	70
Nov	*	-255	-85	-32	8	-27	-115	*	*	78
Dec	*	*	-44	14	50	13	-111	*	*	80

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	28	-31	73	13	164	97
Feb	16	-34	61	10	153	93
Mar	-46	-94	-2	-49	81	30
Apr	-96	-167	-50	-121	30	-36
May	-162	-213	-116	-166	-33	-80
Jun	-190	-242	-143	-195	-59	-109
Jul	-187	-247	-140	-200	-56	-114
Aug	-175	-239	-128	-192	-45	-106
Sep	-133	-217	-88	-170	-7	-84
Oct	-88	-142	-44	-96	35	-12
Nov	-24	-88	18	-43	100	39
Dec	16	-44	60	1	150	81

997 RAOUL ISLAND LAT 29 15 S LONG 177 55 E DATA PERIOD 1/1/72 to 31/12/81 CLOTHING LEVEL 0.6 CLO

Mean 3-hourly HEBIDEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	-9	-9	146	247	314	222	46	-11	34	124
Feb	-9	-9	105	224	277	198	-13	-10	34	105
Mar	-14	-15	51	199	261	169	-19	-18	38	121
Apr	-18	-17	-21	160	222	145	-21	-17	35	104
May	-33	-32	-33	112	160	95	-38	-35	42	97
Jun	-50	-50	-51	71	105	56	-55	-53	50	98
Jul	-62	-64	-63	71	108	53	-65	-58	52	97
Aug	-57	-57	-64	84	135	81	-61	-55	53	97
Sep	-53	-56	-58	107	158	104	-63	-53	53	96
Oct	-44	-46	1	153	209	161	8	-37	50	99
Nov	-29	-31	68	193	255	202	55	-32	40	95
Dec	-9	-14	140	246	321	249	101	-8	35	122

Mean day(0900-1800) and night(2100-0600) HEBIDEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	207	29	274	76	412	179
Feb	172	19	235	65	366	165
Mar	153	1	213	44	340	138
Apr	127	-18	184	24	303	112
May	82	-33	136	10	244	94
Jun	44	-51	94	-7	195	73
Jul	42	-61	91	-18	190	62
Aug	60	-58	110	-14	212	67
Sep	77	-55	129	-12	234	70
Oct	133	-31	191	13	309	100
Nov	179	-6	241	39	367	130
Dec	233	27	302	75	445	177

011 KAITAIA AIRPORT LAT 35 04 S LONG 173 17 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.1	1.2	0.8	0.3	0.1	0.1	0.7	1.0	0.2	0.3
Feb	1.1	1.2	1.0	0.3	0.1	0.2	0.8	1.0	0.2	0.3
Mar	1.2	1.2	1.2	0.5	0.2	0.3	0.8	1.1	0.2	0.3
Apr	1.4	1.4	1.4	0.7	0.5	0.6	1.2	1.3	0.2	0.3
May	1.6	1.6	1.6	1.0	0.8	0.9	1.4	1.5	0.2	0.3
Jun	1.7	1.7	1.8	1.3	1.0	1.1	1.6	1.7	0.3	0.3
Jul	1.8	1.8	1.9	1.3	1.1	1.2	1.7	1.8	0.2	0.3
Aug	1.8	1.8	1.9	1.2	1.1	1.2	1.7	1.8	0.2	0.3
Sep	1.8	1.8	1.8	1.2	1.0	1.1	1.5	1.7	0.2	0.3
Oct	1.6	1.7	1.7	1.0	0.8	0.8	1.2	1.6	0.2	0.3
Nov	1.5	1.5	1.4	0.7	0.6	0.6	1.2	1.4	0.2	0.3
Dec	1.3	1.4	1.0	0.5	0.3	0.4	1.0	1.2	0.2	0.3

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.3	1.1	0.2	0.7	0.0	0.4
Feb	0.3	1.1	0.2	0.7	0.0	0.4
Mar	0.5	1.2	0.3	0.8	0.1	0.4
Apr	0.8	1.4	0.5	0.9	0.2	0.5
May	1.0	1.6	0.7	1.1	0.4	0.7
Jun	1.2	1.7	0.9	1.2	0.5	0.7
Jul	1.3	1.8	0.9	1.3	0.5	0.8
Aug	1.3	1.8	0.9	1.3	0.5	0.8
Sep	1.2	1.8	0.8	1.2	0.5	0.8
Oct	0.9	1.7	0.6	1.2	0.4	0.7
Nov	0.8	1.4	0.5	1.0	0.3	0.6
Dec	0.6	1.2	0.4	0.8	0.2	0.5

112 WHENUAPAI AIRPORT LAT 36 47 S LONG 174 38 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.2	1.2	0.8	0.3	0.1	0.2	0.5	1.0	0.2	0.4
Feb	1.1	1.2	0.9	0.3	0.1	0.1	0.5	1.0	0.2	0.4
Mar	1.2	1.3	1.2	0.4	0.2	0.3	0.8	1.1	0.2	0.3
Apr	1.4	1.5	1.5	0.7	0.5	0.6	1.2	1.3	0.2	0.3
May	1.7	1.7	1.7	1.1	0.8	0.9	1.4	1.6	0.3	0.3
Jun	1.9	1.9	1.9	1.4	1.1	1.1	1.6	1.8	0.3	0.3
Jul	1.9	2.0	2.0	1.4	1.1	1.2	1.7	1.8	0.3	0.3
Aug	1.9	1.9	2.0	1.3	1.0	1.2	1.7	1.8	0.2	0.3
Sep	1.8	1.8	1.8	1.2	1.0	1.0	1.5	1.7	0.2	0.3
Oct	1.7	1.7	1.7	0.9	0.7	0.8	1.2	1.6	0.2	0.3
Nov	1.5	1.6	1.3	0.7	0.5	0.6	0.9	1.4	0.2	0.3
Dec	1.3	1.4	0.9	0.5	0.3	0.4	0.7	1.2	0.2	0.4

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.2	1.0	0.1	0.7	0.0	0.3
Feb	0.2	1.1	0.1	0.7	0.0	0.4
Mar	0.4	1.2	0.2	0.8	0.1	0.4
Apr	0.7	1.4	0.5	1.0	0.2	0.5
May	1.1	1.7	0.7	1.2	0.4	0.7
Jun	1.3	1.9	0.9	1.3	0.5	0.8
Jul	1.4	1.9	0.9	1.4	0.5	0.8
Aug	1.3	1.9	0.9	1.3	0.5	0.8
Sep	1.2	1.8	0.8	1.3	0.5	0.8
Oct	0.9	1.7	0.6	1.2	0.3	0.7
Nov	0.7	1.4	0.4	1.0	0.2	0.6
Dec	0.5	1.2	0.3	0.8	0.1	0.4

115 AUCKLAND CITY LAT 36 51 S LONG 174 46 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.1	1.1	0.7	0.4	0.3	0.3	0.6	1.0	0.2	0.3
Feb	1.0	1.1	0.8	0.4	0.2	0.3	0.7	1.0	0.2	0.3
Mar	1.1	1.1	1.1	0.5	0.3	0.4	0.9	1.0	0.2	0.3
Apr	1.3	1.3	1.4	0.7	0.6	0.7	1.2	1.2	0.2	0.3
May	1.5	1.6	1.6	1.0	0.9	1.0	1.4	1.5	0.2	0.3
Jun	1.7	1.7	1.8	1.3	1.1	1.2	1.6	1.7	0.2	0.3
Jul	1.8	1.8	1.9	1.4	1.2	1.3	1.7	1.7	0.2	0.3
Aug	1.8	1.8	1.8	1.3	1.1	1.2	1.7	1.7	0.2	0.3
Sep	1.7	1.7	1.8	1.2	1.0	1.1	1.5	1.7	0.2	0.3
Oct	1.6	1.6	1.6	1.0	0.8	0.9	1.2	1.5	0.2	0.3
Nov	1.4	1.4	1.2	0.8	0.7	0.7	1.0	1.4	0.2	0.3
Dec	1.2	1.3	0.9	0.6	0.5	0.5	0.8	1.2	0.2	0.3

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.4	1.0	0.2	0.7	0.1	0.3
Feb	0.4	1.0	0.2	0.6	0.1	0.3
Mar	0.5	1.1	0.3	0.7	0.1	0.4
Apr	0.8	1.3	0.5	0.9	0.3	0.5
May	1.1	1.5	0.7	1.1	0.4	0.6
Jun	1.3	1.7	0.9	1.2	0.5	0.7
Jul	1.4	1.8	1.0	1.3	0.6	0.8
Aug	1.3	1.8	0.9	1.2	0.5	0.7
Sep	1.2	1.7	0.8	1.2	0.5	0.7
Oct	1.0	1.6	0.7	1.1	0.4	0.6
Nov	0.8	1.4	0.5	0.9	0.3	0.5
Dec	0.6	1.2	0.4	0.8	0.2	0.4

119 AUCKLAND AIRPORT LAT 36 58 S LONG 174 47 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.1	1.2	0.8	0.3	0.1	0.2	0.6	1.1	0.2	0.3
Feb	1.1	1.1	0.9	0.3	0.1	0.3	0.6	1.0	0.2	0.3
Mar	1.1	1.2	1.2	0.5	0.3	0.4	0.8	1.1	0.2	0.3
Apr	1.3	1.4	1.4	0.8	0.5	0.6	1.2	1.3	0.2	0.4
May	1.6	1.6	1.7	1.1	0.8	1.0	1.5	1.6	0.2	0.4
Jun	1.8	1.8	1.9	1.4	1.1	1.2	1.7	1.8	0.2	0.3
Jul	1.9	1.9	2.0	1.5	1.2	1.2	1.7	1.8	0.2	0.3
Aug	1.8	1.9	1.9	1.3	1.1	1.2	1.7	1.8	0.2	0.3
Sep	1.7	1.8	1.8	1.2	1.0	1.1	1.5	1.7	0.2	0.3
Oct	1.6	1.6	1.7	1.0	0.8	0.9	1.2	1.6	0.2	0.3
Nov	1.4	1.5	1.3	0.8	0.6	0.7	1.0	1.4	0.2	0.3
Dec	1.3	1.3	1.0	0.5	0.4	0.5	0.8	1.2	0.2	0.3

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.3	1.0	0.2	0.7	0.0	0.4
Feb	0.3	1.0	0.2	0.7	0.0	0.4
Mar	0.5	1.1	0.3	0.8	0.1	0.4
Apr	0.8	1.4	0.5	0.9	0.3	0.5
May	1.1	1.6	0.8	1.1	0.4	0.7
Jun	1.3	1.8	0.9	1.3	0.5	0.8
Jul	1.4	1.9	1.0	1.3	0.6	0.8
Aug	1.3	1.9	0.9	1.3	0.5	0.8
Sep	1.2	1.8	0.8	1.2	0.5	0.8
Oct	1.0	1.6	0.7	1.1	0.4	0.7
Nov	0.7	1.4	0.5	1.0	0.3	0.6
Dec	0.5	1.2	0.3	0.8	0.1	0.5

246 ROTORUA AIRPORT LAT 38 10 S LONG 176 15 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.3	1.4	1.0	0.4	0.1	0.2	0.6	1.2	0.3	0.5
Feb	1.3	1.4	1.0	0.4	0.1	0.2	0.7	1.2	0.3	0.4
Mar	1.4	1.4	1.4	0.6	0.3	0.4	1.0	1.3	0.3	0.4
Apr	1.7	1.7	1.7	0.9	0.6	0.7	1.4	1.6	0.3	0.4
May	2.0	2.0	2.0	1.3	1.0	1.1	1.7	1.9	0.3	0.4
Jun	2.1	2.1	2.1	1.6	1.3	1.3	1.9	2.1	0.6	0.4
Jul	2.2	2.1	2.2	1.6	1.4	1.4	2.0	2.1	0.4	0.3
Aug	2.1	2.2	2.1	1.5	1.2	1.3	1.9	2.0	0.4	0.4
Sep	2.0	2.1	2.1	1.4	1.0	1.1	1.7	1.9	0.3	0.4
Oct	1.8	1.9	1.9	1.1	0.8	0.8	1.3	1.7	0.3	0.4
Nov	1.7	1.7	1.4	0.8	0.5	0.6	1.1	1.6	0.3	0.4
Dec	1.5	1.6	1.1	0.6	0.3	0.4	0.9	1.4	0.3	0.4

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.3	1.2	0.2	0.8	0.0	0.5
Feb	0.3	1.2	0.2	0.8	0.0	0.4
Mar	0.6	1.4	0.3	0.9	0.1	0.5
Apr	0.9	1.7	0.6	1.2	0.3	0.7
May	1.3	2.0	0.9	1.4	0.5	0.8
Jun	1.5	2.1	1.1	1.5	0.6	0.9
Jul	1.6	2.1	1.1	1.5	0.6	0.9
Aug	1.5	2.1	1.0	1.5	0.6	0.9
Sep	1.3	2.0	0.9	1.4	0.5	0.9
Oct	1.0	1.8	0.7	1.3	0.4	0.8
Nov	0.8	1.6	0.5	1.1	0.2	0.6
Dec	0.5	1.4	0.3	1.0	0.1	0.5

291 GISBORNE AIRPORT LAT 38 40 S LONG 177 59 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.2	1.3	0.8	0.2	0.0	0.1	0.7	1.1	0.3	0.4
Feb	1.2	1.3	1.0	0.2	0.1	0.2	0.7	1.1	0.3	0.5
Mar	1.4	1.4	1.4	0.5	0.2	0.3	0.9	1.2	0.3	0.4
Apr	1.6	1.7	1.7	0.9	0.4	0.6	1.3	1.5	0.3	0.5
May	1.9	2.0	2.0	1.3	0.8	0.9	1.6	1.8	0.3	0.4
Jun	2.1	2.1	2.1	1.6	1.2	1.2	1.8	2.0	0.4	0.4
Jul	2.1	2.1	2.2	1.6	1.2	1.3	1.9	2.0	0.3	0.4
Aug	2.1	2.1	2.2	1.5	1.1	1.2	1.8	2.0	0.3	0.4
Sep	1.9	2.0	2.0	1.2	0.8	1.0	1.5	1.8	0.3	0.4
Oct	1.8	1.8	1.8	0.9	0.6	0.7	1.2	1.6	0.3	0.4
Nov	1.6	1.7	1.3	0.6	0.4	0.5	1.1	1.4	0.3	0.4
Dec	1.4	1.5	1.0	0.3	0.2	0.3	0.8	1.2	0.3	0.4

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.2	1.1	0.1	0.7	0.0	0.4
Feb	0.3	1.1	0.2	0.8	0.0	0.4
Mar	0.5	1.3	0.3	0.9	0.1	0.5
Apr	0.8	1.6	0.5	1.1	0.3	0.7
May	1.2	1.9	0.8	1.4	0.5	0.8
Jun	1.5	2.1	1.0	1.5	0.6	0.9
Jul	1.5	2.1	1.0	1.5	0.6	0.9
Aug	1.4	2.1	1.0	1.5	0.6	0.9
Sep	1.1	1.9	0.8	1.4	0.5	0.8
Oct	0.9	1.8	0.6	1.2	0.3	0.7
Nov	0.7	1.5	0.4	1.0	0.2	0.6
Dec	0.4	1.3	0.2	0.9	0.1	0.5

308 NEW PLYMOUTH AIRPORT LAT 39 01 S LONG 174 11 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.3	1.4	1.1	0.5	0.3	0.3	0.8	1.2	0.2	0.3
Feb	1.3	1.4	1.2	0.4	0.2	0.3	0.8	1.2	0.3	0.4
Mar	1.4	1.4	1.4	0.7	0.4	0.4	0.9	1.3	0.3	0.3
Apr	1.6	1.6	1.6	1.0	0.7	0.7	1.3	1.5	0.3	0.3
May	1.8	1.9	1.9	1.4	1.0	1.1	1.6	1.8	0.3	0.4
Jun	2.0	2.0	2.1	1.7	1.3	1.3	1.8	2.0	0.3	0.3
Jul	2.0	2.1	2.1	1.7	1.3	1.4	1.9	2.0	0.4	0.3
Aug	2.0	2.1	2.1	1.6	1.2	1.3	1.8	2.0	0.3	0.4
Sep	1.9	1.9	2.0	1.4	1.1	1.2	1.6	1.9	0.2	0.3
Oct	1.8	1.9	1.9	1.1	0.9	0.9	1.3	1.7	0.2	0.3
Nov	1.6	1.7	1.5	0.9	0.7	0.7	1.2	1.5	0.2	0.3
Dec	1.5	1.6	1.2	0.7	0.5	0.6	1.0	1.4	0.2	0.4

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.5	1.3	0.3	0.9	0.1	0.5
Feb	0.4	1.3	0.3	0.9	0.1	0.5
Mar	0.6	1.4	0.4	1.0	0.2	0.6
Apr	0.9	1.6	0.6	1.1	0.3	0.7
May	1.3	1.8	0.9	1.3	0.5	0.8
Jun	1.5	2.0	1.1	1.4	0.6	0.9
Jul	1.6	2.1	1.1	1.5	0.7	0.9
Aug	1.5	2.0	1.0	1.5	0.6	0.9
Sep	1.3	1.9	0.9	1.4	0.5	0.9
Oct	1.0	1.8	0.7	1.3	0.4	0.8
Nov	0.9	1.6	0.6	1.1	0.3	0.7
Dec	0.7	1.4	0.4	1.0	0.2	0.6

401 OHAKEA LAT 40 12 S LONG 175 23 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.4	1.4	1.1	0.5	0.3	0.4	0.7	1.3	0.3	0.4
Feb	1.3	1.4	1.1	0.5	0.3	0.4	0.7	1.2	0.3	0.4
Mar	1.4	1.5	1.5	0.8	0.4	0.5	1.0	1.3	0.3	0.5
Apr	1.6	1.7	1.7	1.1	0.7	0.8	1.4	1.5	0.3	0.4
May	1.9	1.9	2.0	1.5	1.1	1.2	1.7	1.8	0.3	0.4
Jun	2.1	2.1	2.2	1.7	1.3	1.4	1.9	2.0	0.3	0.3
Jul	2.1	2.1	2.2	1.7	1.3	1.4	1.9	2.0	0.3	0.3
Aug	2.1	2.1	2.1	1.6	1.3	1.3	1.9	2.0	0.2	0.3
Sep	2.0	2.0	2.0	1.4	1.1	1.2	1.7	1.9	0.2	0.4
Oct	1.8	1.9	1.9	1.1	0.9	1.0	1.3	1.7	0.3	0.4
Nov	1.7	1.7	1.5	0.9	0.7	0.7	1.1	1.6	0.3	0.4
Dec	1.5	1.6	1.2	0.7	0.5	0.6	0.9	1.4	0.3	0.4

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.5	1.3	0.3	0.9	0.1	0.5
Feb	0.5	1.3	0.3	0.9	0.1	0.5
Mar	0.7	1.4	0.4	1.0	0.2	0.6
Apr	1.0	1.6	0.7	1.2	0.4	0.7
May	1.4	1.9	0.9	1.4	0.6	0.8
Jun	1.6	2.1	1.1	1.5	0.7	0.9
Jul	1.6	2.1	1.1	1.5	0.7	0.9
Aug	1.5	2.1	1.1	1.5	0.6	0.9
Sep	1.4	2.0	0.9	1.4	0.6	0.9
Oct	1.1	1.8	0.8	1.3	0.4	0.8
Nov	0.9	1.6	0.6	1.1	0.3	0.7
Dec	0.7	1.4	0.4	1.0	0.2	0.6

417 PARAPARAUMU AIRPORT LAT 40 54 S LONG 174 59 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	0.0	1.4	1.0	0.6	0.4	0.4	0.6	1.3	0.0	0.3
Feb	0.0	1.4	1.1	0.5	0.4	0.4	0.6	1.3	0.0	0.3
Mar	0.0	1.4	1.4	0.7	0.5	0.5	1.0	1.1	0.0	0.3
Apr	1.5	1.6	1.6	0.9	0.7	0.8	1.4	1.5	0.0	0.4
May	0.0	1.8	1.9	1.4	1.1	1.2	1.7	1.8	0.0	0.3
Jun	0.0	2.0	2.0	1.6	1.3	1.4	1.9	2.1	0.0	0.4
Jul	0.0	2.1	2.1	1.6	1.3	1.4	1.9	1.9	0.0	0.4
Aug	0.0	2.0	2.1	1.5	1.3	1.4	1.8	0.0	0.0	0.4
Sep	0.0	1.9	2.0	1.3	1.2	1.2	1.6	0.0	0.0	0.3
Oct	0.0	1.8	1.8	1.2	1.0	1.0	1.3	0.0	0.0	0.3
Nov	0.0	1.7	1.4	0.9	0.7	0.7	1.0	0.0	0.0	0.3
Dec	0.0	1.5	1.1	0.7	0.6	0.6	0.8	0.0	0.0	0.3

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.5	1.2	0.3	0.8	0.1	0.4
Feb	0.5	1.2	0.3	0.8	0.1	0.5
Mar	0.7	1.4	0.4	1.0	0.2	0.5
Apr	0.9	1.6	0.6	1.1	0.3	0.7
May	1.3	1.8	0.9	1.3	0.5	0.8
Jun	1.6	2.0	1.1	1.4	0.6	0.9
Jul	1.6	2.1	1.1	1.5	0.7	0.9
Aug	1.5	2.1	1.0	1.5	0.6	0.9
Sep	1.3	1.9	0.9	1.4	0.5	0.8
Oct	1.1	1.8	0.8	1.3	0.4	0.8
Nov	0.8	1.5	0.5	1.1	0.3	0.6
Dec	0.6	1.3	0.4	0.9	0.2	0.5

434 KELBURN LAT 41 17 S LONG 174 46 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.5	1.5	1.2	0.7	0.6	0.6	0.9	1.4	0.2	0.4
Feb	1.4	1.5	1.2	0.8	0.5	0.6	1.0	1.4	0.2	0.4
Mar	1.5	1.5	1.5	0.9	0.7	0.8	1.2	1.4	0.2	0.4
Apr	1.6	1.6	1.7	1.1	0.9	1.0	1.6	1.6	0.2	0.4
May	1.9	1.9	1.9	1.5	1.3	1.4	1.8	1.8	0.2	0.4
Jun	2.1	2.1	2.1	1.7	1.5	1.6	2.0	2.0	0.3	0.4
Jul	2.1	2.1	2.1	1.7	1.5	1.6	2.0	2.1	0.2	0.4
Aug	2.1	2.1	2.1	1.6	1.5	1.5	2.0	2.1	0.2	0.4
Sep	2.0	2.0	2.0	1.5	1.3	1.4	1.8	2.0	0.2	0.4
Oct	1.9	1.9	1.9	1.3	1.1	1.2	1.5	1.9	0.2	0.4
Nov	1.7	1.8	1.5	1.1	0.9	1.0	1.3	1.7	0.2	0.4
Dec	1.6	1.6	1.3	0.9	0.8	0.8	1.1	1.6	0.2	0.4

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.7	1.4	0.5	1.0	0.3	0.6
Feb	0.7	1.4	0.5	1.0	0.3	0.6
Mar	0.9	1.5	0.6	1.0	0.3	0.6
Apr	1.1	1.6	0.8	1.1	0.5	0.7
May	1.5	1.9	1.0	1.3	0.6	0.8
Jun	1.7	2.1	1.2	1.5	0.7	0.9
Jul	1.7	2.1	1.2	1.5	0.7	0.9
Aug	1.7	2.1	1.2	1.5	0.7	0.9
Sep	1.5	2.0	1.1	1.4	0.6	0.9
Oct	1.3	1.9	0.9	1.4	0.5	0.8
Nov	1.1	1.7	0.7	1.2	0.4	0.7
Dec	0.9	1.5	0.6	1.1	0.4	0.6

436 WELLINGTON AIRPORT LAT 41 20 S LONG 174 49 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.4	1.4	1.1	0.7	0.6	0.6	0.8	1.3	0.2	0.3
Feb	1.3	1.4	1.1	0.7	0.5	0.6	0.9	1.3	0.2	0.4
Mar	1.4	1.4	1.4	0.9	0.7	0.7	1.1	1.3	0.2	0.4
Apr	1.6	1.6	1.6	1.1	0.9	1.0	1.5	1.5	0.2	0.4
May	1.8	1.8	1.8	1.5	1.2	1.3	1.7	1.8	0.2	0.4
Jun	2.0	2.0	2.0	1.7	1.5	1.5	1.9	2.0	0.3	0.4
Jul	2.0	2.1	2.1	1.7	1.5	1.5	1.9	2.0	0.2	0.4
Aug	2.0	2.1	2.1	1.6	1.4	1.5	1.9	2.0	0.2	0.4
Sep	1.9	2.0	2.0	1.5	1.3	1.4	1.7	1.9	0.2	0.3
Oct	1.8	1.9	1.9	1.3	1.1	1.1	1.4	1.8	0.2	0.3
Nov	1.7	1.7	1.5	1.1	0.9	0.9	1.2	1.6	0.2	0.3
Dec	1.5	1.5	1.2	0.9	0.7	0.7	1.0	1.5	0.2	0.4

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.7	1.3	0.4	0.9	0.2	0.5
Feb	0.7	1.3	0.5	0.9	0.2	0.5
Mar	0.8	1.4	0.6	1.0	0.3	0.6
Apr	1.1	1.6	0.8	1.1	0.5	0.7
May	1.4	1.8	1.0	1.3	0.6	0.8
Jun	1.7	2.0	1.2	1.4	0.7	0.9
Jul	1.7	2.0	1.2	1.5	0.7	0.9
Aug	1.6	2.0	1.2	1.5	0.7	0.9
Sep	1.5	1.9	1.0	1.4	0.6	0.9
Oct	1.2	1.8	0.9	1.3	0.5	0.8
Nov	1.0	1.6	0.7	1.1	0.4	0.7
Dec	0.8	1.4	0.6	1.0	0.3	0.6

545 NELSON AIRPORT LAT 41 17 S LONG 173 14 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.3	1.4	0.9	0.3	0.3	0.4	0.6	1.1	0.2	0.3
Feb	1.2	1.3	1.0	0.2	0.3	0.4	0.6	1.1	0.2	0.3
Mar	1.3	1.4	1.5	0.5	0.4	0.5	0.9	1.2	0.3	0.3
Apr	1.6	1.7	1.7	0.9	0.6	0.7	1.3	1.5	0.3	0.3
May	2.0	2.0	2.1	1.4	0.9	1.0	1.7	1.9	0.3	0.4
Jun	2.2	2.2	2.2	1.7	1.1	1.1	1.9	2.1	0.4	0.4
Jul	2.2	2.2	2.2	1.6	1.1	1.2	1.9	2.1	0.5	0.4
Aug	2.1	2.2	2.2	1.5	1.1	1.2	1.8	2.0	0.3	0.3
Sep	2.0	2.0	2.1	1.1	1.0	1.1	1.5	1.8	0.3	0.3
Oct	1.8	1.8	1.9	0.9	0.8	0.9	1.2	1.6	0.2	0.3
Nov	1.6	1.7	1.4	0.7	0.7	0.8	1.0	1.5	0.2	0.2
Dec	1.4	1.5	1.0	0.5	0.5	0.5	0.8	1.3	0.3	0.3

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.4	1.2	0.2	0.8	0.1	0.4
Feb	0.4	1.2	0.2	0.8	0.1	0.4
Mar	0.6	1.4	0.4	0.9	0.2	0.5
Apr	0.9	1.6	0.6	1.1	0.3	0.6
May	1.2	2.0	0.8	1.4	0.5	0.8
Jun	1.5	2.2	1.0	1.5	0.6	0.9
Jul	1.5	2.2	1.0	1.5	0.6	0.9
Aug	1.4	2.1	1.0	1.5	0.5	0.9
Sep	1.2	2.0	0.8	1.4	0.5	0.8
Oct	0.9	1.8	0.6	1.2	0.3	0.7
Nov	0.8	1.5	0.5	1.1	0.3	0.6
Dec	0.6	1.3	0.4	0.9	0.2	0.5

614 HOKITIKA AIRPORT LAT 42 43 S LONG 170 59 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.4	1.5	1.2	0.6	0.5	0.6	1.1	1.3	0.2	0.3
Feb	1.4	1.5	1.2	0.5	0.4	0.5	1.0	1.3	0.2	0.3
Mar	1.5	1.5	1.5	0.8	0.5	0.6	1.0	1.4	0.3	0.4
Apr	1.6	1.7	1.7	1.1	0.7	0.8	1.4	1.6	0.3	0.4
May	2.0	2.0	2.0	1.6	1.0	1.1	1.7	1.9	0.3	0.5
Jun	2.2	2.2	2.2	1.9	1.2	1.2	2.0	2.2	0.4	0.4
Jul	2.2	2.2	2.2	1.8	1.3	1.3	2.0	2.2	0.4	0.4
Aug	2.2	2.2	2.2	1.6	1.2	1.3	1.9	2.1	0.4	0.4
Sep	2.0	2.1	2.1	1.4	1.1	1.2	1.6	1.9	0.2	0.4
Oct	1.9	1.9	1.9	1.1	1.0	1.0	1.4	1.8	0.2	0.3
Nov	1.7	1.8	1.6	1.0	0.8	0.9	1.4	1.6	0.2	0.3
Dec	1.5	1.6	1.3	0.8	0.6	0.7	1.3	1.4	0.2	0.3

Mean day(0900-1800) and night(2100-0600) CLODEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.7	1.4	0.4	0.9	0.2	0.5
Feb	0.6	1.3	0.4	0.9	0.2	0.5
Mar	0.7	1.5	0.5	1.0	0.2	0.6
Apr	1.0	1.7	0.7	1.1	0.4	0.7
May	1.3	2.0	0.9	1.4	0.5	0.8
Jun	1.6	2.2	1.1	1.6	0.6	0.9
Jul	1.6	2.2	1.1	1.6	0.6	1.0
Aug	1.5	2.2	1.0	1.5	0.6	0.9
Sep	1.3	2.0	0.9	1.4	0.5	0.8
Oct	1.1	1.9	0.8	1.3	0.4	0.8
Nov	1.0	1.7	0.7	1.2	0.4	0.7
Dec	0.8	1.5	0.5	1.0	0.3	0.6

677 KAIKOURA AIRPORT LAT 42 25 S LONG 173 41 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.4	1.4	1.0	0.5	0.4	0.5	1.1	1.4	0.3	0.6
Feb	1.4	1.4	1.1	0.5	0.5	0.5	1.1	1.4	0.3	0.6
Mar	1.5	1.5	1.5	0.7	0.6	0.7	1.2	1.4	0.3	0.6
Apr	1.6	1.6	1.6	1.0	0.8	0.9	1.5	1.6	0.3	0.6
May	1.9	1.9	1.9	1.4	1.2	1.3	1.8	1.9	0.3	0.5
Jun	2.1	2.1	2.1	1.7	1.4	1.5	2.0	2.1	0.3	0.6
Jul	2.1	2.1	2.1	1.7	1.4	1.5	2.1	2.1	0.3	0.6
Aug	2.1	2.1	2.2	1.6	1.4	1.5	2.0	2.1	0.3	0.6
Sep	2.0	2.0	2.0	1.3	1.1	1.2	1.7	1.9	0.3	0.6
Oct	1.8	1.9	1.9	1.1	0.9	1.0	1.4	1.8	0.3	0.6
Nov	1.7	1.7	1.5	0.9	0.8	0.8	1.4	1.6	0.3	0.6
Dec	1.5	1.6	1.1	0.6	0.6	0.6	1.3	1.5	0.3	0.6

Mean day(0900-1800) and night(2100-0600) CLODEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.6	1.3	0.4	0.9	0.2	0.5
Feb	0.7	1.3	0.4	0.9	0.2	0.5
Mar	0.8	1.5	0.5	1.0	0.3	0.6
Apr	1.1	1.6	0.7	1.1	0.4	0.6
May	1.4	1.9	1.0	1.3	0.6	0.8
Jun	1.7	2.1	1.2	1.5	0.7	0.9
Jul	1.6	2.1	1.2	1.5	0.7	0.9
Aug	1.6	2.1	1.1	1.5	0.7	0.9
Sep	1.3	2.0	0.9	1.4	0.5	0.8
Oct	1.1	1.8	0.8	1.3	0.4	0.8
Nov	1.0	1.6	0.7	1.1	0.4	0.7
Dec	0.8	1.4	0.5	1.0	0.2	0.5

780 CHRISTCHURCH AIRPORT LAT 43 29 S LONG 172 32 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.5	1.5	1.1	0.7	0.4	0.5	0.9	1.4	0.3	0.5
Feb	1.4	1.5	1.3	0.7	0.4	0.5	0.9	1.4	0.3	0.6
Mar	1.5	1.6	1.6	0.9	0.6	0.7	1.1	1.5	0.3	0.5
Apr	1.7	1.8	1.8	1.2	0.8	0.9	1.5	1.7	0.3	0.5
May	2.0	2.1	2.1	1.7	1.2	1.2	1.8	2.0	0.5	0.5
Jun	2.2	2.3	2.4	1.9	1.5	1.5	2.1	2.2	0.8	0.5
Jul	2.3	2.3	2.4	1.9	1.5	1.5	2.1	2.2	0.7	0.5
Aug	2.3	2.3	2.3	1.8	1.4	1.5	2.1	2.2	0.3	0.5
Sep	2.1	2.1	2.1	1.5	1.1	1.2	1.7	2.0	0.3	0.5
Oct	2.0	2.0	2.0	1.2	0.9	1.0	1.3	1.8	0.3	0.5
Nov	1.8	1.8	1.6	1.0	0.7	0.8	1.1	1.6	0.3	0.5
Dec	1.6	1.6	1.3	0.8	0.5	0.6	0.9	1.5	0.3	0.5

Mean day(0900-1800) and night(2100-0600) CLODEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.6	1.4	0.4	0.9	0.2	0.5
Feb	0.6	1.4	0.4	1.0	0.2	0.5
Mar	0.8	1.6	0.5	1.1	0.3	0.6
Apr	1.1	1.8	0.7	1.2	0.4	0.7
May	1.5	2.0	1.0	1.4	0.6	0.9
Jun	1.7	2.3	1.2	1.6	0.7	1.0
Jul	1.7	2.3	1.2	1.6	0.7	1.0
Aug	1.7	2.3	1.2	1.6	0.7	1.0
Sep	1.4	2.1	1.0	1.5	0.6	0.9
Oct	1.1	1.9	0.8	1.4	0.4	0.8
Nov	0.9	1.7	0.6	1.2	0.3	0.7
Dec	0.7	1.5	0.5	1.0	0.2	0.6

844 INVERCARGILL AIRPORT LAT 46 25 S LONG 168 20 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.7	1.8	1.5	1.0	0.8	0.8	1.1	1.6	0.3	0.5
Feb	1.7	1.8	1.6	1.0	0.7	0.8	1.1	1.6	0.3	0.5
Mar	1.8	1.8	1.9	1.2	0.8	0.9	1.3	1.7	0.3	0.5
Apr	1.9	1.9	2.0	1.5	1.2	1.2	1.6	1.8	0.3	0.4
May	2.1	2.2	2.2	2.0	1.5	1.5	2.0	2.1	0.4	0.4
Jun	2.3	2.3	2.4	2.2	1.8	1.7	2.2	2.3	0.8	0.3
Jul	2.3	2.3	2.4	2.2	1.7	1.7	2.2	2.3	0.6	0.3
Aug	2.3	2.3	2.3	2.0	1.6	1.5	2.1	2.2	0.5	0.3
Sep	2.2	2.3	2.3	1.8	1.4	1.4	1.7	2.1	0.3	0.4
Oct	2.0	2.1	2.1	1.5	1.2	1.2	1.5	2.0	0.4	0.4
Nov	1.9	2.0	1.9	1.3	1.0	1.1	1.4	1.9	0.3	0.5
Dec	1.8	1.8	1.5	1.0	0.8	0.9	1.2	1.7	0.3	0.5

Mean day(0900-1800) and night(2100-0600) CLODEX

	Metabolic rate (W sq m) 90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.9	1.7	0.6	1.2	0.4	0.7
Feb	0.9	1.7	0.6	1.2	0.3	0.7
Mar	1.1	1.8	0.7	1.2	0.4	0.7
Apr	1.4	1.9	1.0	1.4	0.6	0.8
May	1.8	2.1	1.2	1.5	0.8	0.9
Jun	2.0	2.3	1.4	1.6	0.9	1.0
Jul	1.9	2.3	1.4	1.6	0.8	1.0
Aug	1.8	2.3	1.3	1.6	0.8	1.0
Sep	1.6	2.2	1.1	1.6	0.7	1.0
Oct	1.4	2.1	1.0	1.5	0.6	0.9
Nov	1.2	1.9	0.8	1.4	0.5	0.8
Dec	1.0	1.7	0.7	1.2	0.4	0.7

890 DUNEDIN AIRPORT LAT 45 56 S LONG 170 12 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.6	1.7	1.4	0.8	0.5	0.6	0.9	1.5	0.3	0.5
Feb	1.6	1.7	1.5	0.8	0.5	0.6	1.0	1.5	0.3	0.5
Mar	1.7	1.7	1.8	1.0	0.6	0.7	1.1	1.6	0.3	0.5
Apr	1.8	1.9	2.0	1.4	0.9	1.0	1.6	1.8	0.3	0.5
May	2.1	2.2	2.2	1.8	1.4	1.3	2.0	2.0	0.5	0.5
Jun	2.3	2.4	2.4	2.1	1.6	1.6	2.2	2.2	0.7	0.4
Jul	2.3	2.3	2.4	2.1	1.6	1.5	2.2	2.3	0.8	0.4
Aug	2.2	2.3	2.3	1.8	1.5	1.5	2.1	2.2	0.6	0.5
Sep	2.1	2.1	2.2	1.6	1.2	1.3	1.6	2.0	0.4	0.5
Oct	2.0	2.1	2.1	1.3	1.0	1.1	1.4	1.9	0.3	0.5
Nov	1.9	1.9	1.7	1.0	0.8	0.9	1.2	1.8	0.3	0.5
Dec	1.7	1.8	1.4	0.8	0.6	0.7	1.0	1.6	0.3	0.5

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.7	1.5	0.5	1.1	0.2	0.6
Feb	0.7	1.6	0.5	1.1	0.2	0.6
Mar	0.9	1.7	0.6	1.2	0.3	0.7
Apr	1.2	1.9	0.8	1.3	0.5	0.8
May	1.6	2.1	1.1	1.5	0.7	0.9
Jun	1.9	2.3	1.3	1.6	0.8	1.0
Jul	1.8	2.3	1.3	1.6	0.8	1.0
Aug	1.7	2.3	1.2	1.6	0.7	1.0
Sep	1.4	2.1	1.0	1.5	0.6	0.9
Oct	1.2	2.0	0.8	1.4	0.5	0.9
Nov	1.0	1.8	0.7	1.3	0.4	0.8
Dec	0.8	1.6	0.5	1.1	0.3	0.6

944 CAMPBELL ISLAND LAT 52 33 S LONG 169 09 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	2.1	2.1	1.9	1.7	1.5	1.5	1.9	2.1	0.2	0.3
Feb	2.1	2.1	2.0	1.7	1.6	1.6	2.0	2.1	0.2	0.2
Mar	2.1	2.1	2.1	1.8	1.7	1.7	2.0	2.1	0.2	0.2
Apr	2.2	2.2	2.2	2.0	1.9	1.9	2.2	2.2	0.2	0.3
May	2.3	2.4	2.4	2.3	2.1	2.2	2.3	2.4	0.3	0.3
Jun	2.4	2.4	2.4	2.4	2.2	2.3	2.4	2.4	0.4	0.3
Jul	2.4	2.4	2.4	2.3	2.2	2.2	2.4	2.4	0.4	0.3
Aug	2.4	2.4	2.4	2.3	2.1	2.2	2.4	2.4	0.2	0.2
Sep	2.4	2.4	2.4	2.1	2.0	2.1	2.3	2.4	0.2	0.2
Oct	2.4	2.4	2.4	2.1	1.9	2.0	2.2	2.4	0.3	0.2
Nov	2.3	2.3	2.2	1.9	1.8	1.8	2.2	2.3	0.2	0.2
Dec	2.2	2.2	2.0	1.7	1.5	1.6	1.9	2.1	0.2	0.3

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	1.7	2.1	1.2	1.5	0.7	0.9
Feb	1.7	2.1	1.2	1.5	0.8	1.0
Mar	1.8	2.1	1.3	1.5	0.8	1.0
Apr	2.0	2.2	1.4	1.6	0.9	1.0
May	2.2	2.4	1.6	1.7	1.0	1.1
Jun	2.3	2.4	1.7	1.8	1.1	1.1
Jul	2.3	2.4	1.7	1.8	1.1	1.1
Aug	2.2	2.4	1.6	1.7	1.0	1.1
Sep	2.1	2.4	1.5	1.7	1.0	1.1
Oct	2.0	2.4	1.5	1.7	0.9	1.1
Nov	1.9	2.3	1.4	1.7	0.9	1.1
Dec	1.7	2.1	1.2	1.5	0.8	1.0

986 CHATHAM ISLAND LAT 43 57 S LONG 176 34 W DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	1.4	1.4	1.3	0.9	0.8	0.9	1.2	1.4	0.2	0.3
Feb	1.4	1.4	1.3	0.9	0.8	0.9	1.3	1.4	0.2	0.3
Mar	1.4	1.5	1.5	1.1	1.0	1.1	1.5	1.4	0.2	0.3
Apr	1.5	1.5	1.7	1.3	1.2	1.3	1.7	1.5	0.2	0.3
May	1.8	1.7	2.0	1.6	1.5	1.6	1.9	1.7	0.3	0.3
Jun	1.9	1.9	2.1	1.8	1.7	1.8	2.1	1.9	0.3	0.3
Jul	2.0	2.0	2.2	1.8	1.7	1.8	2.1	1.9	0.2	0.3
Aug	1.9	1.9	2.1	1.7	1.6	1.8	2.1	1.9	0.2	0.3
Sep	1.8	1.9	2.1	1.6	1.5	1.6	2.0	1.8	0.2	0.3
Oct	1.8	1.8	1.8	1.4	1.3	1.4	1.8	1.7	0.2	0.3
Nov	1.7	1.7	1.6	1.3	1.2	1.3	1.5	1.7	0.3	0.3
Dec	1.5	1.5	1.4	1.0	0.9	1.0	1.3	1.4	0.2	0.3

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	1.0	1.4	0.7	0.9	0.4	0.5
Feb	1.0	1.4	0.7	0.9	0.4	0.5
Mar	1.2	1.5	0.8	1.0	0.5	0.5
Apr	1.4	1.6	1.0	1.1	0.6	0.6
May	1.7	1.8	1.2	1.2	0.7	0.7
Jun	1.9	2.0	1.3	1.4	0.8	0.8
Jul	1.9	2.0	1.3	1.4	0.8	0.8
Aug	1.8	2.0	1.3	1.4	0.8	0.8
Sep	1.7	1.9	1.2	1.3	0.7	0.8
Oct	1.5	1.8	1.1	1.2	0.7	0.7
Nov	1.3	1.7	0.9	1.1	0.5	0.6
Dec	1.1	1.4	0.7	1.0	0.4	0.5

997 RAOUL ISLAND LAT 29 15 S LONG 177 55 E DATA PERIOD 1/1/72 to 31/12/81

Mean 3-hourly CLODEX Metabolic rate 90 W sq m

	0000	0300	0600	0900	1200	1500	1800	2100	SD 0000	SD 1200
Jan	0.8	0.8	0.3	0.0	0.0	0.0	0.5	0.8	0.1	0.4
Feb	0.8	0.8	0.4	0.0	0.0	0.0	0.6	0.7	0.1	0.3
Mar	0.8	0.8	0.6	0.1	0.0	0.1	0.8	0.8	0.2	0.4
Apr	0.9	0.9	0.9	0.2	0.0	0.2	0.9	0.9	0.1	0.3
May	1.1	1.1	1.1	0.4	0.3	0.4	1.1	1.1	0.2	0.3
Jun	1.2	1.2	1.2	0.6	0.5	0.6	1.2	1.2	0.2	0.3
Jul	1.3	1.3	1.3	0.7	0.5	0.7	1.3	1.3	0.1	0.3
Aug	1.3	1.3	1.3	0.6	0.5	0.6	1.3	1.3	0.2	0.3
Sep	1.3	1.3	1.3	0.6	0.4	0.6	1.2	1.3	0.2	0.3
Oct	1.2	1.2	1.0	0.4	0.2	0.4	0.9	1.2	0.2	0.3
Nov	1.1	1.1	0.7	0.2	0.1	0.3	0.7	1.1	0.2	0.3
Dec	0.9	0.9	0.5	0.0	0.0	0.0	0.4	0.9	0.2	0.4

Mean day(0900-1800) and night(2100-0600) CLODEX Metabolic rate (W sq m)

	90 day	90 night	120 day	120 night	175 day	175 night
Jan	0.1	0.7	0.0	0.4	0.0	0.2
Feb	0.1	0.7	0.0	0.4	0.0	0.2
Mar	0.2	0.8	0.1	0.5	0.0	0.2
Apr	0.3	0.9	0.2	0.6	0.0	0.3
May	0.5	1.1	0.3	0.7	0.1	0.4
Jun	0.7	1.2	0.5	0.8	0.2	0.4
Jul	0.8	1.3	0.5	0.9	0.3	0.5
Aug	0.8	1.3	0.5	0.9	0.2	0.5
Sep	0.7	1.3	0.4	0.9	0.2	0.5
Oct	0.5	1.2	0.3	0.8	0.1	0.4
Nov	0.3	1.0	0.1	0.7	0.0	0.3
Dec	0.1	0.8	0.0	0.5	0.0	0.2

Mean 0900 hours HEBIDEX Clothing level 0.1 clo

A53293 KERIKERI DATA*
LAT 35 14 S LONG 173 57 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-87	-252	-40	45	261
Feb	-121	-302	-75	9	219
Mar	-79	-279	-34	54	272
Apr	-71	-307	-25	61	283
May	-90	-333	-41	49	274
Jun	-147	-379	-99	-9	207
Jul	-165	-422	-118	-29	181
Aug	-194	-436	-147	-59	151
Sep	-332	-546	-284	-198	-2
Oct	-314	-501	-268	-184	9
Nov	-248	-388	-201	-118	73
Dec	-198	-350	-151	-65	130

* *1/1/72 to 31/12/73, 1/3/78 to 28/2/82*

A53651 WAIPOUA FOREST 1/1/72 to 28/2/82
LAT 35 39 S LONG 173 33 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-14	-168	35	128	371
Feb	6	-178	55	151	401
Mar	39	-167	89	185	443
Apr	8	-210	57	153	402
May	-21	-250	28	123	367
Jun	-82	-306	-36	55	284
Jul	-88	-323	-44	46	269
Aug	-108	-337	-62	27	251
Sep	-197	-387	-150	-63	149
Oct	-204	-365	-158	-74	128
Nov	-155	-282	-111	-28	185
Dec	-100	-237	-53	34	257

B86602 TAUPO 1/1/72 to 28/2/82
LAT 38 41 S LONG 176 04 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-25	-196	22	115	361
Feb	13	-177	61	156	413
Mar	4	-200	53	152	412
Apr	-35	-246	12	105	345
May	-80	-295	-36	54	279
Jun	-115	-330	-71	16	235
Jul	-111	-333	-67	19	235
Aug	-84	-306	-41	43	266
Sep	-147	-351	-101	-16	203
Oct	-145	-326	-100	-15	204
Nov	-130	-273	-85	-1	218
Dec	-90	-238	-44	42	269

C75832 HAMILTON 1/1/72 to 28/2/82
LAT 37 52 S LONG 175 20 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-53	-217	-6	84	314
Feb	-17	-198	32	125	366
Mar	-16	-220	32	124	364
Apr	-51	-275	-2	90	320
May	-119	-338	-72	18	233
Jun	-151	-372	-105	-17	196
Jul	-164	-393	-118	-29	181
Aug	-191	-417	-145	-56	153
Sep	-261	-463	-214	-126	80
Oct	-230	-400	-183	-94	112
Nov	-190	-322	-144	-56	152
Dec	-133	-270	-86	2	217

C95251 MT RUAPEHU 1/1/72 to 30/11/81
LAT 39 12 S LONG 175 32 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-188	-351	-141	-53	167
Feb	-164	-357	-118	-32	188
Mar	-176	-374	-130	-43	178
Apr	-224	-446	-178	-89	133
May	-271	-509	-226	-143	68
Jun	-359	-593	-314	-232	-29
Jul	-314	-551	-271	-189	16
Aug	-369	-591	-325	-243	-41
Sep	-394	-582	-348	-266	-67
Oct	-364	-532	-318	-234	-36
Nov	-315	-438	-269	-185	14
Dec	-278	-411	-231	-147	57

D87811 WAIKAREMOANA 1/1/72 to 2 8/ 2/82
LAT 38 48 S LONG 177 07 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-238	-420	-191	-107	105
Feb	-222	-407	-176	-93	116
Mar	-190	-406	-146	-61	152
Apr	-315	-545	-270	-184	24
May	-333	-581	-287	-205	-3
Jun	-408	-640	-363	-282	-83
Jul	-449	-697	-404	-323	-127
Aug	-416	-652	-371	-290	-91
Sep	-467	-679	-420	-337	-140
Oct	-386	-578	-339	-256	-58
Nov	-359	-507	-312	-227	-31
Dec	-308	-459	-261	-177	26

D96688 HASTINGS 1/1/72 to 28/2/82
LAT 39 39 S LONG 176 51 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-53	-235	-5	87	323
Feb	-20	-219	30	126	374
Mar	-12	-234	37	133	381
Apr	-93	-329	-45	48	279
May	-112	-375	-66	24	242
Jun	-177	-423	-131	-43	176
Jul	-166	-429	-120	-31	191
Aug	-176	-420	-130	-41	174
Sep	-219	-443	-171	-81	131
Oct	-222	-421	-174	-85	125
Nov	-187	-351	-140	-53	158
Dec	-137	-294	-90	-1	220

E94313 STRATFORD 1/1/71 to 28/2/82
LAT 39 18 S LONG 174 07 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-306	-470	-260	-176	25
Feb	-245	-445	-200	-116	90
Mar	-252	-451	-206	-120	82
Apr	-406	-612	-359	-272	-67
May	-464	-690	-417	-331	-126
Jun	-539	-748	-493	-407	-207
Jul	-616	-835	-570	-485	-287
Aug	-570	-772	-524	-439	-241
Sep	-623	-800	-577	-491	-298
Oct	-529	-693	-482	-397	-203
Nov	-492	-626	-445	-360	-166
Dec	-439	-572	-392	-308	-115

E95351 TUROA 1/5/78 to 31 /10/79
LAT 39 24 S LONG 175 25 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-382	-548	-335	-253	-51
Feb	-374	-529	-328	-243	-37
Mar	-261	-438	-216	-130	67
Apr	-521	-701	-478	-393	-187
May	*	*	*	*	*
Jun	-378	-652	-334	-253	-64
Jul	-1098	-1264	-1054	-972	-775
Aug	-861	-1048	-815	-730	-537
Sep	-882	-1013	-835	-749	-559
Oct	-1012	-1158	-967	-883	-687
Nov	-609	-751	-563	-477	-288
Dec	-474	-596	-429	-343	-144

E95445 OHAKUNE 1/1/72 to 28/2/82
LAT 39 24 S LONG 175 25 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-185	-345	-138	-50	168
Feb	-95	-293	-48	44	274
Mar	-98	-301	-52	41	270
Apr	-187	-399	-140	-51	169
May	-210	-438	-165	-78	138
Jun	-272	-486	-227	-143	63
Jul	-338	-568	-294	-209	-4
Aug	-349	-565	-305	-220	-13
Sep	-414	-594	-368	-283	-81
Oct	-367	-534	-321	-235	-34
Nov	-339	-477	-292	-206	-6
Dec	-284	-418	-237	-151	56

F12882 LAKE ROTOITI 1/1/72 to 28/2/82
LAT 41 48 S LONG 172 51 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-298	-453	-251	-169	19
Feb	-227	-423	-182	-101	96
Mar	-246	-449	-201	-119	77
Apr	-248	-475	-203	-119	78
May	-263	-514	-220	-139	58
Jun	-348	-604	-304	-227	-34
Jul	-320	-584	-276	-199	-8
Aug	-367	-612	-324	-243	-50
Sep	-419	-619	-373	-289	-99
Oct	-392	-566	-345	-261	-76
Nov	-412	-532	-364	-280	-93
Dec	-353	-474	-306	-223	-36

F21422 GREYMOUTH 1/1/72 to 2 8/2/82
LAT 42 48 S LONG 171 12 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-141	-269	-95	-12	196
Feb	-81	-241	-37	50	275
Mar	-119	-312	-72	17	238
Apr	-162	-372	-116	-31	178
May	-160	-391	-114	-26	188
Jun	-276	-524	-233	-150	49
Jul	-237	-485	-192	-109	96
Aug	-315	-559	-270	-186	11
Sep	-230	-426	-185	-103	103
Oct	-232	-383	-185	-103	104
Nov	-246	-352	-199	-117	83
Dec	-201	-300	-155	-72	131

Mean 0900 hours HEBIDEX Clothing level 0.1 clo

F30311 FRANZ JOSEF 1/1/72 to 31/12/81
LAT 43 23 S LONG 170 11 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-50	-168	-5	79	312
Feb	-17	-176	28	117	360
Mar	-34	-223	13	106	349
Apr	-7	-216	39	130	368
May	-74	-317	-32	52	276
Jun	-56	-315	-14	69	291
Jul	-51	-308	-11	72	295
Aug	-65	-312	-24	57	278
Sep	-64	-262	-21	62	283
Oct	-120	-272	-76	8	228
Nov	-150	-247	-105	-23	187
Dec	-131	-215	-85	-3	209

F47691 MILFORD SOUND 1/1/72 to 28/2/82
LAT 44 40 S LONG 167 55 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-143	-240	-98	-16	207
Feb	-85	-232	-42	46	277
Mar	-79	-258	-34	57	284
Apr	-113	-305	-67	22	245
May	-185	-414	-143	-56	157
Jun	-230	-477	-187	-103	103
Jul	-249	-497	-207	-125	79
Aug	-235	-474	-193	-110	95
Sep	-232	-416	-189	-108	100
Oct	-193	-330	-148	-69	142
Nov	-214	-293	-168	-90	116
Dec	-208	-266	-162	-82	128

H30711 THE HERMITAGE 1/1/72 to 28/2/82
LAT 43 44 S LONG 170 06 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-282	-403	-236	-150	59
Feb	-161	-330	-115	-28	192
Mar	-183	-372	-137	-49	166
Apr	-216	-425	-172	-86	127
May	-253	-491	-209	-126	82
Jun	-221	-477	-177	-96	108
Jul	-227	-478	-183	-105	97
Aug	-249	-488	-205	-126	79
Sep	-365	-556	-319	-236	-34
Oct	-356	-515	-309	-224	-24
Nov	-399	-501	-353	-269	-73
Dec	-337	-424	-291	-207	-9

H31162 SKI BASIN 1/1/72 to 31/1/82
LAT 43 08 S LONG 171 41 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-500	-631	-454	-370	-178
Feb	-374	-550	-328	-245	-52
Mar	-452	-640	-406	-321	-125
Apr	-450	-661	-404	-318	-120
May	-545	-786	-499	-415	-218
Jun	-647	-925	-602	-518	-323
Jul	-632	-884	-586	-501	-308
Aug	-562	-761	-517	-435	-244
Sep	-720	-905	-674	-590	-399
Oct	-593	-744	-548	-462	-275
Nov	-665	-760	-618	-532	-343
Dec	-608	-704	-561	-475	-285

I49711 WANAKA 1/8/72 to 28/2/82
LAT 44 42 S LONG 169 08 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-238	-373	-192	-108	97
Feb	-172	-360	-127	-41	174
Mar	-148	-363	-102	-15	205
Apr	-178	-404	-134	-51	148
May	-295	-533	-251	-169	21
Jun	-366	-592	-321	-239	-49
Jul	-357	-595	-312	-231	-41
Aug	-304	-556	-260	-179	13
Sep	-280	-490	-236	-153	45
Oct	-310	-486	-265	-181	16
Nov	-338	-456	-293	-209	-14
Dec	-306	-401	-260	-177	16

I57473 TE ANAU 1/1/72 to 2 8/2/82
LAT 45 25 S LONG 167 44 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-303	-394	-257	-173	28
Feb	-208	-351	-162	-75	136
Mar	-190	-357	-145	-60	161
Apr	-252	-432	-207	-122	85
May	-277	-479	-232	-150	54
Jun	-314	-519	-270	-188	8
Jul	-350	-558	-306	-223	-24
Aug	-339	-537	-295	-213	-17
Sep	-423	-587	-377	-293	-96
Oct	-404	-539	-358	-274	-76
Nov	-414	-490	-367	-284	-88
Dec	-358	-411	-312	-228	-32

I58061 QUEENSTOWN 1/1/72 to 28/2/82
LAT 45 02 S LONG 168 40 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-271	-367	-225	-140	64
Feb	-158	-320	-113	-26	192
Mar	-111	-297	-64	27	257
Apr	-122	-319	-77	12	237
May	-266	-483	-222	-138	71
Jun	-364	-600	-320	-237	-37
Jul	-338	-576	-295	-214	-15
Aug	-324	-553	-280	-198	3
Sep	-269	-451	-225	-140	69
Oct	-318	-457	-273	-189	12
Nov	-345	-431	-300	-217	-16
Dec	-281	-348	-235	-152	49

I59234 ALEXANDRA 1/1/72 to 28/2/82
LAT 45 16 S LONG 169 23 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-161	-274	-116	-30	188
Feb	-59	-223	-12	80	317
Mar	-72	-265	-26	64	293
Apr	-104	-301	-59	29	248
May	-174	-382	-130	-47	161
Jun	-220	-431	-177	-96	110
Jul	-182	-404	-139	-61	142
Aug	-172	-394	-128	-48	157
Sep	-187	-382	-142	-59	146
Oct	-212	-362	-167	-83	119
Nov	-210	-309	-164	-80	123
Dec	-186	-261	-141	-57	147

I68913 STEWART ISLAND 1/5/75 to 2 8/2/82
LAT 46 54 S LONG 168 08 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	-365	-432	-318	-234	-36
Feb	-261	-392	-215	-130	78
Mar	-242	-410	-197	-113	96
Apr	-214	-398	-169	-85	127
May	-253	-457	-208	-127	74
Jun	-280	-499	-236	-156	45
Jul	-299	-519	-255	-176	24
Aug	-247	-460	-203	-124	78
Sep	-310	-481	-265	-182	22
Oct	-372	-498	-326	-243	-51
Nov	-411	-475	-365	-281	-88
Dec	-374	-406	-326	-242	-51

Mean 0900 hours CLODEX

A53293 KERIKERI DATA*

LAT 35 14 S LONG 173 57 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	0.6	1.1	0.4	0.2	0.0
Feb	0.6	1.1	0.4	0.2	0.0
Mar	0.5	1.1	0.3	0.1	0.0
Apr	0.6	1.3	0.4	0.2	0.0
May	0.8	1.6	0.5	0.2	0.0
Jun	1.0	1.7	0.6	0.3	0.1
Jul	1.1	1.9	0.7	0.4	0.1
Aug	1.1	1.8	0.7	0.4	0.1
Sep	1.2	1.7	0.8	0.5	0.2
Oct	1.1	1.5	0.8	0.5	0.2
Nov	1.0	1.3	0.7	0.4	0.1
Dec	0.8	1.2	0.5	0.3	0.1

** 1/1/72 to 31/12/73, 1/3/78 to 28/2/82*

A53651 WAIPOUA FOREST 1/1/72 to 28/2/82

LAT 35 39 S LONG 173 33 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	0.4	1.0	0.2	0.0	0.1
Feb	0.4	1.0	0.2	0.0	0.1
Mar	0.3	1.0	0.1	0.0	0.2
Apr	0.5	1.3	0.2	0.1	0.1
May	0.7	1.5	0.4	0.1	0.1
Jun	0.9	1.8	0.6	0.3	0.0
Jul	1.0	1.8	0.6	0.3	0.0
Aug	0.9	1.8	0.6	0.3	0.0
Sep	1.0	1.6	0.7	0.4	0.1
Oct	1.0	1.4	0.7	0.4	0.1
Nov	0.9	1.3	0.6	0.3	0.0
Dec	0.7	1.1	0.4	0.2	0.0

B86602 TAUPO 1/1/72 to 28/2/8

LAT 38 41 S LONG 176 04 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	0.6	1.2	0.3	0.1	0.1
Feb	0.5	1.3	0.3	0.1	0.1
Mar	0.5	1.3	0.3	0.0	0.1
Apr	0.8	1.6	0.5	0.2	0.1
May	1.1	2.0	0.8	0.4	0.0
Jun	1.3	2.2	0.9	0.5	0.1
Jul	1.4	2.3	0.9	0.5	0.1
Aug	1.3	2.1	0.8	0.4	0.1
Sep	1.2	1.9	0.8	0.4	0.1
Oct	1.1	1.7	0.7	0.4	0.1
Nov	1.0	1.6	0.7	0.3	0.0
Dec	0.8	1.4	0.5	0.2	0.0

C75832 HAMILTON 1/1/72 to 28/2/82

LAT 37 52 S LONG 175 20 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	0.6	1.1	0.3	0.1	0.1
Feb	0.5	1.1	0.3	0.1	0.1
Mar	0.5	1.2	0.3	0.1	0.1
Apr	0.7	1.5	0.4	0.2	0.0
May	1.1	1.9	0.7	0.4	0.1
Jun	1.3	2.1	0.9	0.5	0.1
Jul	1.3	2.2	0.9	0.5	0.1
Aug	1.3	2.0	0.9	0.5	0.1
Sep	1.2	1.8	0.8	0.5	0.1
Oct	1.1	1.6	0.7	0.4	0.1
Nov	1.0	1.4	0.6	0.3	0.1
Dec	0.8	1.2	0.5	0.2	0.0

C95251 MT RUAPEHU 1/1/72 to 30/11/81

LAT 39 12 S LONG 175 32 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	1.1	1.6	0.7	0.4	0.1
Feb	1.0	1.7	0.7	0.4	0.1
Mar	1.1	1.8	0.7	0.4	0.1
Apr	1.2	2.0	0.8	0.5	0.1
May	1.5	2.4	1.1	0.6	0.2
Jun	1.8	2.6	1.3	0.8	0.3
Jul	1.8	2.6	1.3	0.8	0.3
Aug	1.9	2.6	1.3	0.8	0.3
Sep	1.8	2.4	1.3	0.8	0.3
Oct	1.7	2.2	1.2	0.7	0.3
Nov	1.6	2.0	1.1	0.7	0.2
Dec	1.4	1.8	1.0	0.6	0.2

D87811 WAIKAREMOANA 1/1/72 to 28/2/82

LAT 38 48 S LONG 177 07 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	1.0	1.5	0.7	0.4	0.1
Feb	1.0	1.5	0.7	0.4	0.1
Mar	0.9	1.6	0.6	0.3	0.1
Apr	1.2	1.8	0.8	0.5	0.2
May	1.4	2.1	1.0	0.6	0.2
Jun	1.7	2.3	1.2	0.7	0.3
Jul	1.7	2.4	1.2	0.7	0.3
Aug	1.7	2.3	1.2	0.7	0.3
Sep	1.6	2.2	1.1	0.7	0.3
Oct	1.4	2.0	1.0	0.6	0.2
Nov	1.4	1.8	1.0	0.6	0.2
Dec	1.2	1.6	0.8	0.5	0.2

D96688 HASTINGS 1/1/72 to 28/2/82

LAT 39 39 S LONG 176 51 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	0.4	1.0	0.2	0.1	0.1
Feb	0.4	1.1	0.2	0.0	0.1
Mar	0.4	1.2	0.2	0.0	0.1
Apr	0.7	1.5	0.4	0.2	0.0
May	1.0	1.9	0.6	0.3	0.0
Jun	1.2	2.1	0.8	0.4	0.1
Jul	1.2	2.1	0.8	0.4	0.1
Aug	1.2	2.0	0.8	0.4	0.1
Sep	1.0	1.7	0.7	0.4	0.1
Oct	0.9	1.5	0.6	0.3	0.1
Nov	0.8	1.3	0.5	0.3	0.0
Dec	0.7	1.1	0.4	0.2	0.0

E94313 STRATFORD 1/1/72 to 28/2/82

LAT 39 18 S LONG 174 07 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	1.2	1.6	0.8	0.5	0.2
Feb	1.1	1.7	0.8	0.4	0.1
Mar	1.1	1.7	0.8	0.4	0.1
Apr	1.4	2.0	1.0	0.6	0.2
May	1.6	2.3	1.1	0.7	0.3
Jun	1.9	2.4	1.3	0.8	0.4
Jul	2.0	2.5	1.4	0.9	0.4
Aug	2.0	2.5	1.4	0.9	0.4
Sep	1.9	2.3	1.4	0.9	0.4
Oct	1.7	2.1	1.2	0.8	0.3
Nov	1.6	2.0	1.2	0.7	0.3
Dec	1.5	1.8	1.0	0.6	0.3

E95351 TUROA 1/5/78 to 31/10/79

LAT 39 24 S LONG 175 25 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	1.4	1.9	1.0	0.6	0.2
Feb	1.5	2.1	1.1	0.6	0.2
Mar	1.3	1.8	0.9	0.5	0.2
Apr	1.8	2.4	1.3	0.8	0.3
May	2.0	2.7	1.4	0.9	0.4
Jun	2.0	2.7	1.5	0.9	0.4
Jul	2.5	2.9	1.8	1.2	0.6
Aug	2.3	2.9	1.6	1.0	0.5
Sep	2.2	2.7	1.6	1.0	0.5
Oct	2.2	2.6	1.6	1.0	0.5
Nov	2.0	2.4	1.5	0.9	0.4
Dec	1.8	2.2	1.3	0.8	0.3

E95445 OHAKUNE 1/1/72 to 28/2/82

LAT 39 24 S LONG 175 25 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	0.9	1.5	0.6	0.3	0.1
Feb	0.8	1.4	0.5	0.2	0.0
Mar	0.8	1.5	0.5	0.2	0.0
Apr	1.1	1.8	0.7	0.4	0.1
May	1.3	2.1	0.9	0.5	0.1
Jun	1.6	2.3	1.1	0.6	0.2
Jul	1.7	2.4	1.2	0.7	0.3
Aug	1.6	2.3	1.2	0.7	0.3
Sep	1.6	2.2	1.2	0.7	0.3
Oct	1.4	1.9	1.0	0.6	0.2
Nov	1.4	1.8	1.0	0.6	0.2
Dec	1.2	1.6	0.8	0.5	0.1

F12882 LAKE ROTOITI 1/1/72 to 28/2/82

LAT 41 48 S LONG 172 51 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	1.2	1.6	0.9	0.5	0.2
Feb	1.1	1.6	0.7	0.4	0.1
Mar	1.2	1.7	0.8	0.5	0.1
Apr	1.3	2.0	0.9	0.5	0.2
May	1.6	2.4	1.1	0.7	0.2
Jun	1.9	2.7	1.3	0.8	0.3
Jul	1.9	2.7	1.3	0.8	0.3
Aug	1.8	2.5	1.3	0.8	0.3
Sep	1.8	2.3	1.3	0.8	0.3
Oct	1.6	2.0	1.1	0.7	0.3
Nov	1.6	1.9	1.1	0.7	0.3
Dec	1.4	1.7	1.0	0.6	0.2

F21422 GREYMOUTH 1/1/72 to 28/2/82

LAT 42 28 S LONG 171 12 E

	Metabolic rate (W sq m)				
	90	90 R=0	120	175	300
Jan	0.9	1.3	0.6	0.3	0.0
Feb	0.8	1.3	0.5	0.2	0.0
Mar	0.7	1.4	0.5	0.2	0.0
Apr	1.0	1.6	0.6	0.3	0.1
May	1.1	1.9	0.7	0.4	0.1
Jun	1.4	2.1	1.0	0.6	0.2
Jul	1.4	2.2	1.0	0.5	0.2
Aug	1.4	2.1	1.0	0.6	0.2
Sep	1.3	1.9	0.9	0.5	0.1
Oct	1.2	1.7	0.8	0.5	0.1
Nov	1.2	1.6	0.9	0.5	0.1
Dec	1.1	1.4	0.7	0.4	0.1

Mean 0900 hours CLODEX

F30311 FRANZ JOSEF 1/1/72 to 31/12/81

LAT 43 23 S LONG 170 11 E

	Metabolic rate (W sq m) 90	90 R=0	120	175	300
Jan	0.9	1.4	0.5	0.2	0.0
Feb	0.8	1.4	0.5	0.2	0.1
Mar	0.7	1.5	0.4	0.2	0.1
Apr	0.9	1.7	0.5	0.2	0.0
May	1.2	2.1	0.8	0.4	0.1
Jun	1.3	2.4	0.9	0.5	0.1
Jul	1.3	2.3	0.9	0.4	0.1
Aug	1.3	2.3	0.9	0.5	0.1
Sep	1.2	2.0	0.8	0.4	0.1
Oct	1.1	1.7	0.7	0.4	0.0
Nov	1.3	1.6	0.8	0.4	0.1
Dec	1.1	1.5	0.7	0.4	0.1

F47691 MILFORD SOUND 1/1/72 to 28/2/82

LAT 44 40 S LONG 167 55 E

	Metabolic rate (W sq m) 90	90 R=0	120	175	300
Jan	1.1	1.5	0.7	0.4	0.0
Feb	1.0	1.5	0.6	0.3	0.0
Mar	1.0	1.6	0.6	0.3	0.0
Apr	1.1	1.8	0.7	0.4	0.1
May	1.4	2.2	1.0	0.5	0.2
Jun	1.6	2.4	1.1	0.7	0.2
Jul	1.7	2.5	1.2	0.7	0.3
Aug	1.6	2.4	1.1	0.7	0.2
Sep	1.6	2.2	1.1	0.6	0.2
Oct	1.4	1.9	1.0	0.5	0.1
Nov	1.5	1.8	1.0	0.6	0.2
Dec	1.3	1.6	0.9	0.5	0.1

H30711 THE HERMITAGE 1/1/72 to 28/2/82

LAT 43 44 S LONG 170 06 E

	Metabolic rate (W sq m) 90	90 R=0	120	175	300
Jan	1.2	1.6	0.8	0.4	0.1
Feb	1.0	1.6	0.6	0.3	0.0
Mar	1.1	1.7	0.7	0.4	0.1
Apr	1.3	2.0	0.9	0.5	0.1
May	1.6	2.4	1.1	0.6	0.2
Jun	1.7	2.7	1.2	0.7	0.2
Jul	1.8	2.7	1.2	0.7	0.3
Aug	1.8	2.7	1.2	0.7	0.3
Sep	1.7	2.3	1.2	0.7	0.3
Oct	1.5	2.0	1.1	0.6	0.2
Nov	1.6	1.9	1.1	0.7	0.2
Dec	1.4	1.7	1.0	0.6	0.2

H31162 SKI BASIN 1/1/72 to 31/1/82

LAT 43 08 S LONG 171 41 E

	Metabolic rate (W sq m) 90	90 R=0	120	175	300
Jan	1.7	2.0	1.2	0.7	0.3
Feb	1.5	1.9	1.1	0.6	0.3
Mar	1.6	2.1	1.2	0.7	0.3
Apr	1.7	2.3	1.2	0.7	0.3
May	2.0	2.6	1.4	0.9	0.4
Jun	2.3	2.9	1.7	1.0	0.5
Jul	2.4	3.0	1.7	1.1	0.5
Aug	2.4	3.0	1.7	1.1	0.5
Sep	2.3	2.8	1.7	1.1	0.5
Oct	2.1	2.5	1.5	1.0	0.4
Nov	2.2	2.4	1.6	1.0	0.5
Dec	2.0	2.2	1.4	0.9	0.4

I49711 WANAKA 1/8/72 to 28/2/82

LAT 44 42 S LONG 169 08 E

	Metabolic rate (W sq m) 90	90 R=0	120	175	300
Jan	1.0	1.4	0.7	0.4	0.1
Feb	0.9	1.4	0.6	0.3	0.0
Mar	0.9	1.6	0.6	0.3	0.0
Apr	1.2	1.9	0.8	0.5	0.1
May	1.7	2.4	1.2	0.7	0.3
Jun	2.0	2.7	1.4	0.9	0.4
Jul	2.0	2.7	1.4	0.9	0.4
Aug	1.8	2.5	1.3	0.8	0.3
Sep	1.5	2.1	1.0	0.6	0.2
Oct	1.3	1.8	0.9	0.5	0.2
Nov	1.4	1.7	0.9	0.6	0.2
Dec	1.2	1.5	0.9	0.5	0.2

I57473 TE ANAU 1/1/72 to 28/2/82

LAT 45 25 S LONG 167 44 E

	Metabolic rate (W sq m) 90	90 R=0	120	175	300
Jan	1.3	1.5	0.9	0.5	0.2
Feb	1.1	1.5	0.7	0.4	0.1
Mar	1.1	1.6	0.7	0.4	0.1
Apr	1.3	1.9	0.9	0.5	0.1
May	1.5	2.2	1.1	0.6	0.2
Jun	1.8	2.5	1.3	0.8	0.3
Jul	1.8	2.5	1.3	0.8	0.3
Aug	1.8	2.4	1.3	0.8	0.3
Sep	1.7	2.2	1.2	0.7	0.3
Oct	1.6	1.9	1.1	0.7	0.3
Nov	1.6	1.8	1.1	0.7	0.3
Dec	1.4	1.6	1.0	0.6	0.2

I58061 QUEENSTOWN 1/1/72 to 28/2/82

LAT 45 02 S LONG 168 40 E

	Metabolic rate (W sq m) 90	90 R=0	120	175	300
Jan	1.1	1.4	0.8	0.4	0.1
Feb	0.9	1.5	0.6	0.3	0.0
Mar	0.9	1.6	0.6	0.3	0.0
Apr	1.1	1.8	0.7	0.4	0.0
May	1.6	2.3	1.1	0.6	0.2
Jun	1.9	2.6	1.4	0.8	0.3
Jul	1.9	2.6	1.3	0.8	0.3
Aug	1.8	2.5	1.3	0.8	0.3
Sep	1.5	2.1	1.0	0.6	0.2
Oct	1.4	1.9	1.0	0.6	0.2
Nov	1.5	1.7	1.0	0.6	0.2
Dec	1.3	1.5	0.9	0.5	0.2

I59234 ALEXANDRA 1/1/72 to 28/2/82

LAT 45 16 S LONG 169 23 E

	Metabolic rate (W sq m) 90	90 R=0	120	175	300
Jan	0.9	1.4	0.6	0.3	0.0
Feb	0.8	1.4	0.5	0.2	0.1
Mar	0.8	1.6	0.5	0.2	0.0
Apr	1.2	1.9	0.8	0.4	0.1
May	1.5	2.3	1.0	0.6	0.2
Jun	1.9	2.7	1.3	0.8	0.3
Jul	1.8	2.6	1.2	0.7	0.2
Aug	1.7	2.5	1.2	0.7	0.2
Sep	1.4	2.1	1.0	0.5	0.2
Oct	1.3	1.8	0.9	0.5	0.1
Nov	1.2	1.6	0.8	0.5	0.1
Dec	1.1	1.4	0.8	0.4	0.1

I68913 STEWART ISLAND 1/5/75 to 28/2/8

LAT 46 54 S LONG 168 08 E

	Metabolic rate (W sq m) 90	90 R=0	120	175	300
Jan	1.4	1.6	1.0	0.6	0.2
Feb	1.2	1.6	0.8	0.5	0.1
Mar	1.1	1.6	0.8	0.4	0.1
Apr	1.2	1.8	0.8	0.4	0.1
May	1.4	2.1	1.0	0.6	0.2
Jun	1.6	2.3	1.1	0.7	0.2
Jul	1.6	2.3	1.1	0.7	0.2
Aug	1.5	2.2	1.1	0.6	0.2
Sep	1.5	2.1	1.1	0.6	0.2
Oct	1.5	1.9	1.1	0.6	0.2
Nov	1.6	1.8	1.1	0.7	0.3
Dec	1.6	1.7	1.1	0.6	0.2

Mean monthly HEBIDEX at 0900 hours Clothing level 0.1 clo Metabolic rate 90 W sq m

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A53021	Kaitaia Airport	-101	-90	-106	-138	-166	-254	-288	-283	-373	-351	-307	-203
A53024	Aupouri Forest	-96	-74	-78	-105	-128	-193	-214	-232	-317	-334	-283	-207
A53123	Kaitaia	-21	-24	-21	-50	-87	-112	-123	-111	-91	-69	-51	-35
A53352	Umawera No 2	3	58	53	-16	3	-44	-89	-99	-169	-200	-142	-95
A53354	Umawera	-20	-16	-12	-62	-61	-132	-165	-180	-263	-281	-192	-81
A53461	Punakitere	-55	-70	-49	-110	-143	-236	-325	-235	-277	-256	-222	-192
A53482	Kaikohe	-183	-158	-166	-178	-216	-268	-307	-361	-512	-475	-414	-293
A53541	Waiotemarama	-236	-190	-143	-273	-310	-438	-485	-466	-588	-534	-521	-360
A53982	Dargaville	-98	-52	-46	-84	-133	-172	-234	-230	-366	-314	-257	-200
A54201	Waitangi Forest	29	12	26	26	18	-31	-36	-44	-118	-120	-89	-38
A54601	Puketurua, Northland	-108	-91	-65	-75	-105	-136	-183	-178	-321	-325	-264	-238
A54631	Glenbervie Forest	-15	20	38	42	39	-11	-32	-42	-114	-159	-122	-91
A54733	Whangarei Airport	-83	-48	-35	-43	-92	-143	-159	-161	-264	-278	-250	-166
A54734	Whangarei	-30	-13	4	-7	-23	-62	-97	-87	-188	-222	-176	-128
A54842	Marsden Power Station	-10	-17	-8	-19	-41	-127	-161	-145	-221	-214	-169	-89
A55911	Mokohinau	-296	-284	-270	-433	-524	-667	-694	-605	-669	-610	-471	-407
A64212	Pouto	-108	-183	-63	-5	-117	-156	-275	-418	-541	-387	-458	-180
A64282	Leigh	-61	-92	-93	-101	-126	-204	-208	-211	-273	-231	-209	-168
A64463	Warkworth	-111	-60	-78	-87	-144	-189	-224	-212	-380	-320	-290	-218
A64542	Oyster Point	-116	-66	-64	-88	-160	-221	-242	-223	-369	-364	-323	-213
A64741	Woodhill Forest	-87	-38	-36	-43	-51	-120	-120	-142	-236	-259	-243	-173
A64751	Riverhead Forest	-72	-47	-42	-42	-97	-107	-166	-149	-322	-320	-264	-173
A64754	Kumeu	-116	-106	-122	-76	-135	-186	-176	-238	-393	-298	-257	-187
A64761	Whenuapai	-106	-63	-48	-71	-118	-175	-199	-193	-338	-302	-268	-213
A64871	Albert Park, Auckland	-102	-89	-73	-109	-131	-200	-224	-236	-327	-300	-280	-208
A64961	Oratia, Auckland	-80	-8	-6	-65	-62	-114	-160	-166	-255	-268	-241	-177
A64971	Owairaka, Auckland	-75	-67	-68	-81	-93	-129	-146	-176	-260	-276	-265	-169
A65132	Port Fitzroy	-86	-69	-53	-107	-152	-262	-293	-255	-365	-298	-262	-179
B65741	Coromandel	-125	-149	-139	-82	-147	-207	-172	-219	-365	-322	-302	-205
B65761	Whangapoua Forest	0	24	25	-5	-61	-78	-114	-114	-213	-161	-142	-87
B75152	Thames	-50	0	-7	-36	-98	-134	-129	-96	-174	-169	-156	-104
B75182	Tairua Forest	-22	13	18	21	-12	-65	-98	-120	-162	-173	-151	-89
B75252	Ngatea	-5	41	25	-24	-85	-116	-133	-120	-131	-123	-146	-58
B75361	Paeroa	-31	9	19	8	-39	-81	-103	-114	-189	-195	-196	-108
B75381	Waihi	-104	-42	-9	-30	-108	-157	-195	-184	-280	-250	-205	-147
B75571	Te Aroha	-34	22	-10	-53	-165	-237	-279	-260	-273	-198	-203	-107
B75572	Mt Te Aroha TV Station	-269	-240	-324	-457	-595	-617	-719	-590	-625	-431	-437	-306
B75592	Katikati	27	8	34	81	72	3	-34	-39	-147	-129	-170	-35
B76621	Tauranga Airport	-101	-81	-69	-118	-204	-269	-292	-262	-302	-281	-252	-161
B76835	Te Puke	-76	-55	-38	-101	-76	-141	-151	-148	-200	-238	-234	-158
B76951	Rotoehu Forest	-24	-4	26	-5	-44	-108	-90	-112	-160	-176	-148	-94
B76984	Edgecumbe	-74	-67	-63	-146	-207	-248	-269	-304	-244	-218	-209	-135
B76993	Whakatane	20	32	27	-17	-54	-107	-115	-85	-85	-102	-95	-46
B77911	Port Ohope	27	53	70	72	-21	-142	-73	-42	-164	-160	-137	-68
B85285	Kinleith	-198	-132	-155	-174	-207	-312	-285	-323	-408	-405	-344	-265
B86034	Tikitere	-201	-175	-201	-251	-302	-381	-436	-356	-509	-406	-367	-258
B86071	Kawerau	-15	5	13	-31	-88	-182	-161	-159	-158	-147	-139	-69
B86083	Te Teko	14	-19	6	-79	-135	-178	-139	-140	-96	-100	-115	-62
B86124	Whakarewarewa	-139	-114	-116	-173	-211	-236	-228	-254	-314	-332	-276	-209
B86131	Rotorua Airport	-137	-103	-81	-138	-162	-217	-228	-249	-344	-342	-282	-233
B86341	Waiotapu Forest	-124	-62	-64	-94	-95	-140	-167	-203	-331	-305	-266	-223
B86403	Atiamuri Power Station	-75	-31	-62	-104	-220	-191	-186	-181	-198	-203	-185	-125
B86451	Kaingaroa Forest	-228	-164	-177	-242	-233	-298	-334	-357	-498	-453	-391	-338
B86612	Wairakei Research Station	-113	-62	-43	-102	-138	-171	-166	-163	-268	-261	-262	-208
B86821	Waimihia Forest	-260	-230	-198	-233	-267	-337	-329	-385	-476	-450	-395	-358
C64971	Mangere, Auckland	-92	-44	-20	-80	-88	-116	-176	-193	-322	-270	-261	-186
C64981	Otara, Auckland	-114	-62	-42	-75	-94	-127	-165	-195	-327	-302	-277	-208
C65921	Orere Point	-91	-11	-11	-70	-156	-169	-234	-134	-203	-153	-110	-113
C74082	Auckland Airport	-152	-104	-97	-152	-189	-259	-292	-295	-389	-355	-338	-249
C74091	Ardmore	-70	-27	-3	-42	-82	-141	-147	-171	-296	-266	-231	-153
C74282	Pukekohe	-83	-35	-37	-61	-115	-122	-152	-199	-310	-265	-230	-172
C74371	Maioro Forest	-110	-73	-75	-91	-104	-158	-164	-198	-260	-257	-257	-183
C75003	Hunua	-62	-78	-74	-19	-92	-93	-110	-141	-330	-251	-262	-153
C75202	Mercer	-56	7	-37	-49	-123	-128	-152	-132	-325	-276	-240	-137
C75321	Maramarua Forest	-39	17	19	1	-38	-49	-82	-92	-187	-200	-207	-127
C75412	Te Kauwhata	-103	-74	-75	-115	-171	-189	-169	-250	-296	-279	-286	-213
C75731	Ruakura, Hamilton	-93	-55	-52	-112	-147	-194	-209	-246	-295	-258	-243	-182
C75801	Whatawhata	-104	-53	-56	-101	-152	-184	-222	-230	-312	-250	-244	-182
C75831	Rukuhia	-110	-92	-76	-131	-201	-238	-257	-286	-340	-294	-253	-188
C75953	Cambridge	-60	-20	-32	-25	-116	-169	-149	-169	-249	-228	-196	-152
C84173	Port Taharoa	-168	-125	-109	-205	-317	-419	-454	-381	-398	-354	-367	-270
C84761	Mohakatino Station, Mokau	-173	-156	-160	-274	-317	-390	-422	-407	-391	-335	-337	-260
C85061	Arapuni Power Station	-27	5	21	-36	-79	-102	-155	-127	-154	-158	-132	-101
C85132	Waikeria	-87	-90	-124	-113	-192	-321	-242	-265	-343	-354	-339	-238
C85141	Waikeria	-43	10	-3	-33	-26	-45	-62	-104	-82	-119	-99	-82
C85314	Te Kuiti	-2	22	43	17	-22	-67	-71	-102	-180	-174	-135	-125
C85551	Pureora Forest	-224	-171	-180	-191	-201	-256	-287	-319	-412	-424	-395	-350
C85821	Taumaranui	-13	22	16	-46	-94	-129	-144	-127	-105	-101	-85	-72
C94002	Omata	-111	-64	-80	-99	-166	-257	-212	-223	-289	-230	-241	-166
C94003	New Plymouth	-94	-68	-73	-123	-174	-225	-181	-232	-346	-253	-248	-195
C94011	New Plymouth Airport	-208	-177	-198	-282	-356	-480	-478	-480	-497	-430	-386	-303
C94025	Tikorangi	-156	-116	-135	-146	-192	-283	-349	-409	-473	-368	-333	-266
C94262	Te Wera Forest	-106	-29	-57	-96	-83	-130	-151	-194	-220	-266	-212	-195
C95022	Lower Retaruke	-63	-14	-1	-74	-119	-184	-190	-179	-200	-206	-185	-152
C95085	Turangi	-119	-45	-37	-125	-175	-291	-280	-215	-317	-280	-239	-206
C95086	Tongariro Prison Farm	-119	-107	-73	-80	-185	-269	-255	-291	-407	-351	-301	-280
D05383	Ballantrae, Woodville	-454	-416	-409	-446	-573	-570	-644	-665	-753	-662	-665	-563
D05481	Mangamutu, Pahiatua	-130	-59	-36	-74	-111	-119	-149	-165	-253	-219	-218	-179
D05765	Mt Bruce Reserve	-163	-103	-100	-147	-224	-263	-261	-243	-308	-300	-289	-215

Mean monthly HEBIDEX at 0900 hours Clothing level 0.1 clo Metabolic rate 90 W sq m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
D05964 Waingawa, Masterton	-143	-83	-101	-158	-223	-307	-299	-276	-301	-251	-207	-188
D06022 Kopua	-289	-193	-190	-217	-295	-329	-354	-332	-489	-442	-425	-373
D06051 Waipukurau	-111	-67	-66	-85	-173	-211	-246	-240	-299	-233	-181	-160
D06212 Dannevirke	-265	-178	-149	-213	-265	-278	-346	-337	-449	-424	-394	-358
D06921 Castlepoint	-326	-265	-258	-337	-460	-572	-531	-508	-577	-526	-465	-401
D15062 East Taratahi	-114	-21	-60	-112	-187	-221	-190	-220	-266	-219	-221	-192
D15081 Ngaumu Forest	-151	-88	-98	-104	-96	-141	-126	-128	-238	-270	-273	-235
D15134 Tauherenikau, Alloa	-27	39	28	-8	-65	-135	-109	-92	-128	-123	-120	-76
D15163 Gladstone, Arahura	-65	2	-18	-41	-67	-126	-115	-196	-220	-137	-168	-175
D15211 Waiorongomai	-225	-140	-128	-188	-254	-273	-292	-268	-374	-350	-321	-312
D15631 Cape Palliser	-314	-209	-257	-319	-494	-572	-558	-559	-584	-505	-473	-430
D78751 East Cape	-227	-259	-203	-247	-364	-485	-461	-460	-440	-431	-411	-294
D78931 Ruatoria	-5	2	15	-31	-45	-122	-119	-136	-145	-130	-156	-91
D87681 Waerenga O Kuri	-111	-63	-55	-137	-208	-313	-258	-265	-279	-188	-262	-212
D87683 Manutuke, Gisborne	-86	-63	-51	-86	-170	-228	-227	-222	-277	-225	-206	-146
D87862 Whakapunake TV Station	-218	-188	-334	-493	-419	-642	-698	-605	-353	-379	-319	-328
D87881 Wharerata Forest	-133	-186	-255	-200	-419	-507	-508	-500	-413	-404	-319	-224
D96241 Makahu Saddle	-304	-206	-306	-440	-402	-580	-473	-579	-538	-431	-388	-329
D96272 Esk Forest	-128	-96	-102	-166	-193	-283	-303	-275	-336	-287	-264	-208
D96382 Tangoio	-69	8	-32	-143	-190	-261	-226	-216	-225	-176	-170	-105
D96444 Kaweka Forest	-127	-69	-47	-159	-244	-278	-271	-240	-339	-279	-216	-197
D96591 Napier	-52	-58	-23	-123	-165	-243	-188	-211	-217	-192	-164	-135
D96743 Gwavas Forest	-97	-46	-9	-81	-90	-163	-161	-157	-215	-212	-196	-166
D96931 Makaretu	-121	-73	-25	-154	-226	-257	-302	-253	-360	-276	-239	-184
D97004 Mohaka Forest	-85	-27	-10	-43	-128	-205	-171	-197	-234	-200	-197	-154
D97042 Frasertown, Wairoa	11	10	35	-36	-62	-156	-133	-105	-140	-121	-98	-35
D97043 Wairoa	-39	-59	-41	-149	-236	-316	-299	-292	-247	-219	-183	-123
D97381 Portland Is	-279	-265	-234	-359	-506	-682	-618	-587	-532	-482	-419	-331
E04891 Kapiti Is	-354	-320	-316	-364	-492	-580	-553	-587	-624	-586	-530	-457
E04991 Paraparaumu Airport	-276	-190	-167	-194	-297	-353	-348	-362	-433	-442	-388	-349
E05221 Flockhouse, Bulls	-218	-103	-120	-163	-186	-248	-217	-287	-390	-368	-345	-247
E05231 Ohakea	-273	-196	-215	-250	-334	-383	-367	-385	-454	-417	-408	-335
E05282 Wharite Peak	-826	-919	-885	-979	-1358	-1208	-1285	-1287	-1361	-1235	-1165	-998
E05363 Palmerston North DSIR	-230	-137	-133	-172	-221	-208	-211	-242	-367	-399	-358	-311
E05521 Waitarere Forest	-231	-112	-138	-148	-199	-254	-266	-245	-353	-321	-320	-282
E05622 Levin	-89	-14	-21	-66	-118	-172	-162	-179	-230	-239	-202	-176
E05628 Hokio Beach School	-119	-25	-44	-101	-178	-193	-206	-199	-235	-256	-214	-206
E14185 Porirua	-383	-312	-257	-312	-379	-381	-392	-434	-518	-538	-481	-459
E14192 Taita, Lower Hutt	-144	-58	-66	-91	-135	-141	-148	-177	-282	-281	-236	-231
E14195 Avalon, Lower Hutt	-203	-158	-166	-191	-275	-337	-326	-338	-383	-354	-337	-294
E14197 Pauatahanui	-260	-239	-239	-262	-345	-431	-329	-365	-467	-455	-415	-354
E14272 Kelburn, Wellington	-376	-315	-315	-339	-434	-497	-469	-488	-565	-565	-519	-484
E14273 Makara	-449	-436	-484	-566	-620	-619	-695	-696	-768	-803	-657	-612
E14279 Karori, Wellington	-279	-242	-245	-264	-306	-328	-284	-337	-394	-400	-391	-356
E14285 Somes Is	-285	-222	-211	-240	-376	-394	-436	-397	-462	-473	-414	-411
E14290 Gracefield, Lower Hutt	-206	-135	-162	-141	-219	-269	-242	-261	-359	-355	-325	-284
E14296 Wainuiomata	-139	-89	-71	-66	-123	-212	-194	-197	-226	-264	-236	-227
E14387 Wellington Airport	-397	-350	-336	-384	-499	-571	-557	-568	-615	-613	-548	-489
E15011 Kaitoke	-200	-158	-152	-152	-213	-257	-231	-282	-422	-386	-342	-293
E15102 Wallaceville	-198	-129	-133	-122	-194	-232	-213	-243	-354	-354	-353	-296
E93271 Cape Egmont	-232	-212	-201	-288	-378	-446	-450	-433	-505	-465	-394	-346
E94333 Stratford Dem. Farm	-156	-121	-103	-183	-195	-255	-296	-308	-345	-289	-299	-258
E94512 Manaia Dem. Farm	-194	-198	-164	-273	-268	-424	-354	-426	-445	-465	-345	-341
E94526 Normanby	-226	-172	-174	-183	-220	-327	-366	-342	-582	-450	-415	-325
E94743 Patea	-195	-162	-141	-202	-270	-299	-339	-339	-407	-375	-296	-279
E95451 Karioi	-186	-142	-117	-127	-211	-264	-269	-275	-339	-339	-318	-249
E95464 Waiouru	-226	-154	-177	-276	-329	-376	-418	-404	-531	-446	-409	-335
E95465 Waiouru Military Camp	-227	-138	-176	-242	-256	-310	-329	-340	-440	-428	-376	-314
E95783 Kahui, Taihape	-50	-2	-3	-62	-133	-138	-146	-131	-185	-157	-170	-142
E95902 Wanganui	-63	1	-15	-89	-108	-148	-121	-116	-165	-162	-158	-123
F03501 Farewell Spit	-272	-218	-217	-269	-323	-413	-395	-403	-464	-416	-449	-369
F03801 Totaranui	-63	-74	-40	-31	-63	-150	-129	-104	-174	-206	-162	-184
F11752 Westport Airport	-113	-54	-34	-72	-146	-187	-147	-183	-188	-220	-215	-184
F12162 Cobb Dam	-166	-80	-74	-141	-182	-170	-189	-161	-275	-212	-295	-251
F12214 Karamea	-114	-101	-58	-76	-196	-283	-289	-276	-166	-164	-148	-110
F12752 Lake Rotoroa	-139	-69	-41	-50	-85	-89	-148	-96	-207	-145	-281	-149
F12835 Murchison	-42	15	-37	-86	-164	-184	-170	-160	-87	-82	-105	-100
F20793 Hokitika Airport	-191	-108	-116	-145	-204	-235	-257	-257	-280	-296	-293	-273
F21182 Reefton	-148	-112	-117	-133	-193	-218	-235	-200	-209	-242	-264	-258
F21361 Totara Flat	-106	-84	-74	-153	-192	-198	-215	-218	-201	-182	-193	-182
F21851 Otira Substation	-269	-166	-209	-220	-244	-356	-315	-383	-379	-356	-378	-303
F30153 Hari Hari	-78	-24	-30	-43	-102	-156	-164	-148	-146	-166	-166	-155
F39801 Haast	-142	-61	-125	-140	-241	-438	-357	-374	-258	-268	-250	-225
F66161 Puysegur Point	-872	-700	-514	-678	-595	-635	-725	-852	-922	-897	-844	-726
G04601 Stephens Is.	-452	-430	-466	-460	-528	-663	-595	-675	-687	-669	-604	-526
G12191 Riwaka, Motueka	-30	11	-1	-47	-133	-179	-174	-181	-163	-117	-153	-130
G12382 Tapawera	-57	-62	-88	-116	-201	-183	-276	-276	-288	-151	-185	-112
G13081 Brightlands Bay	-129	-104	-125	-127	-193	-167	-152	-202	-270	-278	-259	-188
G13211 Appleby	-68	-36	-16	-54	-98	-127	-109	-122	-174	-186	-206	-164
G13222 Nelson Airport	-88	-17	-38	-53	-91	-125	-95	-99	-189	-194	-225	-172
G13251 Rai Valley	-79	-57	-83	-118	-187	-219	-210	-222	-231	-202	-206	-160
G13301 Moutere Hills	-122	-82	-71	-147	-283	-343	-302	-287	-260	-242	-241	-179
G13592 Blenheim	-125	-80	-112	-140	-205	-280	-256	-262	-275	-226	-266	-212
G13595 Wither Hills, Blenheim	-75	-56	-84	-93	-147	-212	-183	-181	-234	-190	-197	-188
G13651 Waihopai Power Station	15	80	34	-12	-128	-153	-132	-140	-108	-49	-81	-37
G14501 Vernon Lagoons	-162	-127	-170	-193	-270	-347	-336	-327	-359	-285	-303	-253
G14711 Lake Grassmere	-266	-216	-242	-266	-279	-327	-336	-379	-456	-450	-416	-370
G14721 Cape Campbell	-432	-384	-400	-421	-530	-609	-582	-610	-654	-607	-563	-515
G22581 Hanmer Forest	-77	-14	-10	-63	-117	-134	-135	-130	-165	-144	-173	-144

Mean monthly HEBIDEX at 0900 hours Clothing level 0.1 clo Metabolic rate 90 W sq m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
G23021 Molesworth	-249	-131	-196	-205	-259	-314	-296	-363	-427	-399	-340	-352
G23471 Kaikoura	-214	-150	-144	-185	-262	-353	-350	-377	-353	-343	-322	-283
H21951 Arthurs Pass	-515	-335	-327	-329	-348	-261	-370	-419	-564	-485	-505	-478
H22962 Hawarden	-75	-58	-44	-83	-129	-124	-156	-178	-223	-158	-162	-158
H23603 Waiau	-84	-10	-40	-32	-117	-135	-145	-144	-196	-149	-174	-127
H30841 Godley Peaks, Tekapo	-130	-36	-16	-76	-120	-207	-178	-105	-241	-231	-194	-222
H30941 Mt John	-410	-253	-240	-360	-505	-507	-503	-480	-589	-571	-509	-490
H31172 Craigieburn Forest	-229	-138	-154	-137	-168	-183	-202	-210	-293	-280	-330	-272
H31173 Camp Stream	-400	-232	-331	-273	-302	-663	-540	-348	-528	-479	-455	-486
H31352 Lake Coleridge	-151	-78	-73	-64	-84	-110	-87	-116	-205	-202	-234	-231
H31572 Highbank Power Station	-356	-278	-262	-299	-381	-394	-497	-485	-516	-460	-462	-433
H31593 Hororata Substation	-116	-62	-65	-65	-121	-171	-199	-182	-231	-184	-207	-186
H31883 Winchmore	-77	-55	-38	-38	-89	-119	-150	-168	-183	-151	-157	-145
H31927 Peel Forest	-119	-68	-54	-11	-75	-114	-148	-114	-155	-179	-196	-166
H31971 Ashburton	-68	-24	-3	-2	-44	-56	-71	-105	-172	-127	-151	-131
H32073 Waipara	-100	-40	-46	-39	-139	-136	-159	-186	-216	-165	-203	-177
H32252 Ashley Forest	-123	-85	-60	-51	-81	-169	-213	-217	-246	-198	-207	-195
H32352 Rangiora	-228	-171	-160	-156	-262	-302	-341	-339	-314	-321	-306	-293
H32412 Darfield	-135	-115	-92	-91	-158	-152	-178	-186	-216	-200	-215	-216
H32424 Eyrewell Forest	-159	-72	-73	-38	-104	-130	-157	-189	-222	-216	-215	-216
H32451 Christchurch Airport	-301	-226	-219	-217	-281	-298	-363	-355	-406	-387	-403	-379
H32542 Templeton	-206	-178	-158	-159	-200	-280	-333	-307	-346	-348	-325	-315
H32561 Christchurch	-127	-75	-71	-23	-47	-75	-73	-142	-134	-169	-192	-177
H32573 Bromley, Christchurch	-164	-80	-100	-114	-138	-187	-188	-207	-222	-228	-241	-237
H32574 Mt Pleasant	-250	-185	-189	-157	-201	-213	-271	-324	-329	-300	-304	-315
H32641 Lincoln	-225	-168	-167	-176	-239	-274	-288	-310	-359	-346	-341	-303
H32643 Lincoln No 3	-241	-203	-216	-232	-374	-327	-283	-257	-281	-252	-290	-223
H32893 Akaroa	-135	-117	-129	-113	-140	-172	-279	-214	-233	-237	-285	-227
H40041 Lake Tekapo	-128	-48	-45	-81	-125	-156	-200	-175	-257	-234	-224	-192
H40112 Lake Pukaki	-131	-67	-64	-111	-172	-230	-253	-203	-266	-255	-226	-223
H40182 Fairlie	-85	1	4	-32	-82	-79	-85	-73	-120	-112	-174	-161
H40183 Fairlie	-74	-28	-16	-64	-75	-57	-39	-88	-133	-68	-99	-90
H40211 Twizel	-129	-50	-62	-77	-119	-122	-110	-149	-212	-251	-243	-209
H40321 Haldon Station	16	47	-42	0	-176	-69	-67	-12	-212	-115	-159	-193
H40892 Ikawai	-112	-51	-30	-50	-121	-180	-206	-208	-191	-160	-230	-176
H41127 Geraldine	-85	-33	-15	-16	-60	-73	-94	-121	-132	-158	-168	-136
H41131 Orari Estate	-150	-82	-72	-58	-110	-120	-144	-148	-203	-204	-256	-211
H41224 Temuka	-182	-116	-98	-103	-182	-249	-215	-241	-218	-180	-242	-220
H41411 Adair	-126	-82	-104	-84	-118	-170	-209	-172	-201	-170	-220	-195
H41421 Timaru	-186	-134	-126	-106	-155	-206	-206	-202	-253	-242	-264	-258
I40742 Kurow	-207	-115	-125	-163	-224	-287	-298	-235	-359	-194	-255	-255
I40751 Otiake Farm	-229	-194	-202	-284	-388	-435	-435	-452	-337	-300	-405	-302
I40961 Livingstone Substation	-111	-47	-53	-58	-165	-172	-181	-152	-212	-219	-225	-195
I41901 Oamaru Airport	-315	-232	-211	-251	-343	-468	-435	-392	-361	-376	-386	-373
I49591 Tara Hills, Omarama	-170	-98	-102	-135	-207	-259	-252	-277	-254	-287	-271	-258
I49621 Lake Hawea	-471	-360	-374	-456	-516	-618	-555	-569	-674	-614	-553	-550
I49822 Queensberry	-185	-118	-121	-113	-152	-178	-211	-186	-306	-230	-277	-268
I49932 Bendigo	-228	-134	-141	-179	-214	-199	-266	-237	-371	-270	-302	-304
I50012 Naseby Forest	-196	-111	-65	-91	-158	-141	-163	-163	-258	-277	-266	-257
I50113 Ranfurly	-214	-162	-135	-169	-235	-164	-293	-281	-369	-373	-350	-336
I50272 Herbert Forest	-137	-68	-43	-62	-151	-166	-176	-168	-178	-193	-211	-200
I50471 Palmerston	-258	-143	-124	-127	-156	-156	-189	-190	-242	-294	-371	-349
I50662 Cherry Farm Hospital	-106	-103	-70	-90	-113	-175	-189	-183	-196	-202	-245	-210
I50771 Taiaroa Head	-575	-508	-512	-545	-651	-713	-739	-741	-714	-722	-763	-700
I50831 Invermay, Taieri	-218	-110	-79	-117	-174	-181	-147	-184	-198	-297	-319	-276
I50835 Invermay, Taieri	-245	-172	-155	-94	-158	-227	-225	-206	-336	-332	-392	-306
I50901 Berwick Forest	-206	-105	-55	-78	-179	-172	-184	-211	-262	-260	-277	-239
I50921 Dunedin Airport	-325	-235	-215	-235	-376	-370	-364	-380	-410	-416	-427	-370
I50951 Musselburgh, Dunedin	-224	-128	-113	-106	-169	-186	-189	-242	-214	-261	-318	-279
I51002 Oamaru, Iona Hospital	-186	-171	-133	-169	-229	-278	-218	-312	-248	-302	-254	-308
I57522 West Arm, Manapouri	-216	-121	-105	-105	-100	-112	-120	-151	-174	-240	-239	-208
I57751 Borland Burn	-177	-106	-102	-106	-126	-145	-153	-171	-195	-225	-239	-243
I58074 Queenstown Airport	-216	-165	-147	-226	-345	-397	-386	-364	-316	-297	-281	-289
I58552 Mid Dome	-199	-137	-180	-202	-227	-263	-276	-310	-264	-310	-272	-314
I59021 Cromwell	-184	-127	-72	-103	-170	-176	-152	-132	-232	-270	-271	-231
I59023 Northburn	-172	-107	-90	-107	-210	-223	-212	-159	-301	-231	-265	-228
I59132 Clyde	-41	-31	0	-15	-105	-120	-199	-104	-92	-150	-121	-109
I59133 Clyde Dam	-213	-125	-156	-234	-281	-281	-272	-267	-250	-221	-252	-223
I59161 Ophir	-119	-51	-18	-96	-112	-124	-141	-110	-185	-228	-223	-183
I59162 Moa Creek	-82	-12	6	-34	-104	-117	-73	-76	-142	-150	-150	-141
I59232 Earnscleugh	-207	-131	-75	-79	-145	-183	-163	-153	-205	-266	-261	-215
I59431 Roxburgh Power Station	-182	-104	-93	-149	-230	-277	-249	-190	-197	-281	-271	-220
I59722 Moa Flat	-545	-433	-435	-495	-658	-678	-745	-700	-622	-672	-674	-649
I59891 Mahinerangi Dam	-383	-286	-303	-271	-392	-371	-422	-407	-466	-430	-471	-442
I59921 Tapanui	-108	-79	-66	-121	-210	-236	-199	-222	-222	-248	-229	-134
I59941 Rankleburn Forest	-316	-219	-188	-236	-409	-406	-395	-357	-399	-383	-400	-346
I60021 Taieri Mouth	-351	-256	-224	-258	-400	-390	-445	-396	-421	-425	-434	-387
I68102 Otautau	-220	-119	-77	-99	-148	-151	-149	-116	-187	-268	-294	-252
I68133 Winton	-264	-185	-148	-189	-268	-259	-255	-251	-316	-341	-345	-293
I68192 Gore	-418	-312	-295	-360	-403	-456	-445	-439	-513	-542	-542	-463
I68252 Hokonui Forest	-309	-178	-161	-204	-298	-265	-281	-258	-390	-383	-390	-333
I68362 Woodlands	-361	-232	-198	-243	-285	-275	-236	-253	-393	-372	-404	-336
I68433 Invercargill Airport	-521	-388	-336	-379	-450	-446	-436	-407	-538	-569	-573	-506
I68533 Tiwai Point, Bluff	-553	-422	-390	-469	-530	-559	-476	-461	-590	-647	-645	-535
I69191 Milton	-310	-180	-162	-172	-207	-199	-214	-220	-291	-333	-403	-343
I69273 Finegand, Balclutha	-345	-234	-201	-272	-349	-361	-322	-262	-369	-398	-430	-349
I69464 Owaka	-304	-157	-120	-142	-191	-223	-241	-207	-333	-315	-360	-295
I69481 Nugget Point	-643	-518	-525	-602	-752	-808	-806	-787	-753	-731	-788	-675
I69544 Tautuku	-353	-234	-208	-269	-265	-277	-300	-249	-377	-373	-440	-318

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	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A53021 Kaitaia Airport	77	92	85	87	84	33	31	21	-33	-48	-43	12
A53024 Aupouri Forest	71	93	98	102	96	54	50	41	-23	-55	-43	-2
A53123 Kaitaia	28	27	28	12	-4	-16	-21	-14	-5	3	11	19
A53352 Umawera No 2	155	218	199	170	196	155	144	125	66	21	40	70
A53354 Umawera	126	130	140	88	123	68	60	47	-6	-22	18	86
A53461 Punakitere	106	104	114	96	97	38	-14	36	5	-8	-8	1
A53482 Kaikohe	33	53	52	74	69	24	22	-23	-109	-121	-101	-36
A53541 Waiotemarama	-7	20	71	20	-7	-81	-82	-82	-164	-157	-163	-76
A53982 Dargaville	68	108	118	122	101	75	47	43	-40	-35	-31	0
A54201 Waitangi Forest	169	158	175	202	199	165	162	156	97	71	66	110
A54601 Puketurua, Northland	80	97	122	134	121	93	73	76	-19	-39	-30	-4
A54631 Glenbervie Forest	132	168	187	213	213	176	167	151	88	39	46	71
A54733 Whangarei Airport	86	121	135	153	130	94	91	86	18	-9	-12	33
A54734 Whangarei	118	145	161	185	172	138	125	125	51	11	18	47
A54842 Marsden Power Station	143	143	163	169	156	102	81	78	31	14	25	79
A55911 Mokohinau	-34	-36	-44	-172	-194	-302	-275	-212	-274	-261	-156	-118
A64212 Pouto	64	14	112	174	101	72	29	-45	-138	-93	-151	8
A64282 Leigh	103	84	91	103	99	43	59	54	-1	7	4	28
A64463 Warkworth	68	110	106	127	103	71	59	57	-49	-38	-41	-2
A64542 Oyster Point	61	95	111	120	77	39	41	52	-44	-66	-62	-9
A64741 Woodhill Forest	83	122	132	153	149	102	97	85	13	-19	-22	20
A64751 Riverhead Forest	90	113	124	150	116	99	83	80	-25	-44	-35	16
A64754 Kumeu	55	71	77	118	97	54	66	27	-56	-29	-23	8
A64761 Whenuapai	71	110	128	138	119	73	77	70	-20	-20	-21	1
A64871 Albert Park, Auckland	70	86	107	108	103	57	53	38	-24	-27	-38	2
A64961 Oratia, Auckland	81	147	153	140	147	107	88	72	12	-13	-18	20
A64971 Owairaka, Auckland	89	102	113	126	130	98	96	70	6	-16	-32	23
A65132 Port Fitzroy	91	105	124	116	102	32	27	39	-30	-29	-20	27
B65741 Coromandel	71	69	77	143	112	62	87	67	-25	-26	-33	16
B65761 Whangapoua Forest	141	165	174	176	147	131	116	108	35	45	34	69
B75152 Thames	113	147	157	158	119	86	105	117	59	45	36	70
B75182 Tairua Forest	134	171	182	209	191	152	136	119	68	44	41	77
B75252 Ngatea	127	176	168	144	102	94	80	78	66	57	20	73
B75361 Paeroa	124	165	181	187	154	126	113	106	47	25	8	59
B75381 Waihi	80	137	154	171	128	96	81	79	3	0	4	43
B75571 Te Aroha	125	171	160	144	84	34	7	22	2	17	4	62
B75572 Mt Te Aroha TV Station	-27	-15	-97	-119	-189	-232	-316	-252	-372	-126	-164	-56
B75592 Katikati	164	163	203	262	256	191	176	165	62	74	27	110
B76621 Tauranga Airport	82	98	123	107	70	35	28	37	2	-5	-5	36
B76835 Te Puke	86	104	131	113	136	89	97	82	35	2	-11	24
B76951 Rotoehu Forest	130	151	188	182	161	111	124	107	70	40	35	66
B76984 Edgecumbe	96	104	122	90	65	36	32	10	22	25	4	44
B76993 Whakatane	156	172	175	168	148	105	104	115	106	86	67	97
B77911 Port Ohope	178	195	217	245	182	99	149	156	69	56	49	91
B85285 Kinleith	19	67	72	72	55	0	15	-10	-67	-75	-67	-29
B86034 Tikitere	28	44	44	38	23	-26	-54	-17	-114	-75	-79	-20
B86071 Kawerau	130	147	167	154	124	58	82	73	59	53	35	79
B86083 Te Teko	151	140	170	137	118	83	111	96	106	87	51	85
B86124 Whakarewarewa	50	68	82	60	51	32	43	19	-23	-47	-36	-4
B86131 Rotorua Airport	62	86	119	96	97	59	59	43	-21	-39	-31	-8
B86341 Waiotapu Forest	60	109	121	116	123	82	78	51	-27	-28	-31	-8
B86403 Atiamuri Power Station	88	120	116	80	8	16	23	25	29	14	10	39
B86451 Kaingaroa Forest	4	45	49	31	38	-1	-13	-28	-103	-100	-91	-65
B86612 Wairakei Research Station	57	104	126	99	82	53	67	58	-8	-18	-32	-10
B86821 Waimihia Forest	-17	4	39	35	23	-15	-8	-43	-112	-108	-102	-80
C64971 Mangere, Auckland	82	120	148	131	131	111	84	66	-18	-8	-25	14
C64981 Otara, Auckland	62	102	126	129	120	96	77	53	-27	-33	-40	-1
C65921 Orere Point	80	154	173	139	96	62	8	94	41	45	79	78
C74082 Auckland Airport	49	88	97	94	77	33	24	18	-40	-48	-56	-15
C74091 Ardmore	103	143	167	159	139	92	88	77	-5	-5	-6	44
C74282 Pukekohe	79	122	134	132	116	96	82	51	-27	-22	-19	18
C74371 Maioro Forest	64	96	106	110	112	73	75	47	1	-10	-32	11
C75003 Hunua	97	97	110	178	132	123	124	98	-33	-1	-28	24
C75202 Mercer	122	175	147	138	122	90	90	113	-3	-9	-3	63
C75321 Maramarua Forest	118	165	179	184	162	147	131	124	47	25	1	45
C75412 Te Kauwhata	70	93	104	88	57	55	70	20	-13	-24	-37	-5
C75731 Ruakura, Hamilton	76	104	119	101	79	53	53	23	-15	-13	-23	8
C75801 Whatawhata	72	109	112	97	77	59	42	36	-28	-14	-20	12
C75831 Rukuhia	67	86	108	80	50	28	22	2	-36	-30	-25	8
C75953 Cambridge	95	140	146	161	105	67	88	69	13	12	11	27
C84173 Port Taharoa	39	69	91	42	-3	-58	-72	-45	-59	-55	-79	-34
C84761 Mohakatino Station, Mokau	32	58	64	20	4	-25	-37	-43	-54	-41	-59	-26
C85061 Arapuni Power Station	113	143	167	133	101	84	49	70	48	35	29	48
C85132 Waikeria	83	87	75	89	53	-18	25	14	-27	-54	-64	-18
C85141 Waikeria	97	156	165	144	157	159	142	98	102	57	58	62
C85314 Te Kuiti	143	172	196	193	160	131	128	106	51	37	37	41
C85551 Pureora Forest	6	39	49	64	60	21	5	-18	-78	-88	-102	-79
C85821 Taumaranui	109	151	151	106	59	41	32	45	65	65	53	66
C94002 Omata	65	109	106	120	85	32	61	40	-9	8	-24	18
C94003 New Plymouth	77	109	108	97	77	41	73	35	-34	-2	-17	0
C94011 New Plymouth Airport	14	50	41	15	-11	-72	-61	-79	-99	-82	-76	-43
C94025 Tikorangi	38	79	82	80	84	29	2	-69	-93	-70	-50	-39
C94262 Te Wera Forest	63	127	116	104	120	88	86	50	22	-12	-8	-2
C95022 Lower Retaruke	86	134	152	115	80	35	40	51	18	8	2	16
C95085 Turangi	63	118	131	96	78	-8	9	45	-28	-25	-19	-15
C95086 Tongariro Prison Farm	59	79	108	123	70	28	29	9	-84	-53	-49	-41
D05383 Ballantrae, Woodville	-134	-91	-78	-87	-148	-142	-191	-191	-277	-243	-244	-197
D05481 Mongamutu, Pahiatua	37	97	118	99	88	78	64	51	-7	-9	-22	-2
D05765 Mt Bruce Reserve	28	81	91	77	36	7	18	16	-27	-39	-47	-18

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		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
D05964	Waingawa, Masterton	52	105	90	72	40	-14	1	6	-15	1	1	4
D06022	Kopua	-34	40	49	48	19	-10	-17	-12	-101	-92	-108	-87
D06051	Waipukurau	78	120	119	130	79	57	44	34	-9	19	24	28
D06212	Dannevirke	-13	46	67	46	25	8	-18	-19	-79	-78	-86	-73
D06921	Castlepoint	-59	-9	2	-31	-78	-153	-99	-101	-172	-154	-129	-117
D15062	East Taratahi	64	139	121	94	61	30	55	32	-1	14	-14	0
D15081	Ngaumu Forest	55	107	107	116	128	91	104	101	26	-8	-23	-17
D15134	Tauherenikau, Alloa	116	179	172	157	121	77	97	94	66	62	40	61
D15163	Gladstone, Arahura	114	176	171	175	157	111	122	78	46	84	42	29
D15211	Waiorongomai	-6	65	67	47	13	7	5	-1	-64	-68	-69	-68
D15631	Cape Palliser	-77	20	-13	-33	-157	-178	-176	-156	-199	-180	-163	-154
D78751	East Cape	8	-11	28	23	-30	-96	-79	-79	-101	-98	-94	-49
D78931	Ruatoria	149	162	178	165	165	121	127	98	89	81	40	79
D87681	Waerenga O Kuri	68	110	134	74	59	1	38	21	3	38	-25	2
D87683	Manutuke, Gisborne	92	115	135	128	90	47	56	52	18	27	13	45
D87862	Whakapunake TV Station	-11	19	-55	-143	-47	-246	-207	-201	-48	-66	-61	-72
D87881	Wharerata Forest	75	46	13	64	-44	-107	-80	-84	-75	-61	-45	9
D96241	Makahu Saddle	-37	24	-12	-129	-44	-129	-77	-135	-132	-85	-87	-69
D96272	Esk Forest	66	95	103	79	78	22	23	26	-25	-7	-23	-2
D96382	Tangoio	109	170	138	98	89	48	52	58	22	65	23	63
D96444	Kaweka Forest	59	110	140	77	35	17	33	42	-33	-17	6	12
D96591	Napier	121	125	162	110	93	40	83	62	45	48	45	59
D96743	Gwavas Forest	88	134	172	143	141	90	94	94	45	30	14	29
D96931	Makaretu	75	126	161	85	56	31	20	35	-42	-2	-3	19
D97004	Mohaka Forest	91	139	160	148	111	53	86	61	28	32	17	38
D97042	Frasertown, Wairoa	157	166	192	150	143	83	102	108	81	80	68	110
D97043	Wairoa	124	118	139	76	46	-8	5	10	20	22	27	55
D97381	Portland Is	-38	-25	6	-86	-153	-388	-226	-199	-180	-158	-113	-76
E04891	Kapiti Is	-94	-42	-43	-44	-109	-176	-147	-169	-202	-202	-193	-162
E04991	Paraparaumu Airport	-21	45	68	72	22	-5	-2	-8	-62	-87	-81	-71
E05221	Flockhouse, Bulls	-2	84	83	68	57	32	49	6	-63	-69	-75	-25
E05231	Ohakea	-23	39	30	22	-7	-33	-22	-35	-84	-79	-95	-64
E05282	Wharite Paek	-564	-636	-580	-597	-969	-810	-794	-897	-1102	-956	-862	-686
E05363	Palmerston North DSIR	-9	61	79	66	53	49	52	27	-52	-84	-84	-68
E05521	Waitarere Forest	-13	81	63	67	50	23	22	23	-41	-49	-69	-56
E05622	Levin	73	139	132	122	95	59	70	56	16	-6	-2	7
E05628	Hokio Beach School	55	137	130	107	70	66	64	49	17	-11	-8	-2
E14185	Porirua	-89	-35	9	-11	-38	-45	-48	-77	-131	-161	-142	-142
E14192	Taita, Lower Hutt	36	107	109	105	87	76	82	56	-12	-29	-21	-24
E14195	Avalon, Lower Hutt	11	50	53	53	13	-19	-10	-24	-51	-62	-66	-59
E14197	Pauatahanui	-18	10	20	7	-20	-84	-12	-67	-109	-113	-127	-84
E14272	Kelburn, Wellington	-80	-27	-23	-16	-54	-88	-67	-88	-138	-160	-161	-152
E14273	Makara	-115	-104	-134	-199	-176	-191	-222	-238	-298	-326	-254	-235
E14279	Karori, Wellington	-41	-3	-4	5	0	-19	10	-30	-67	-96	-111	-96
E14285	Somes Is	-44	16	31	31	-39	-43	-64	-60	-101	-138	-102	-118
E14290	Gracefild, Lower Hutt	19	76	70	98	58	31	42	31	-40	-56	-53	-44
E14296	Wainuiomata	43	93	113	128	94	43	50	54	21	-19	-18	-25
E14387	Wellington Airport	-101	-59	-52	-68	-112	-177	-150	-175	-193	-198	-183	-161
E15011	Kaitoke	18	67	82	95	63	24	53	8	-73	-75	-59	-46
E15102	Wallaceville	13	68	73	94	51	27	43	22	-46	-62	-79	-56
E93271	Cape Egmont	-18	15	21	-5	-38	-79	-74	-71	-123	-121	-96	-88
E94333	Stratford Dem. Farm	33	73	87	56	61	24	8	-13	-46	-26	-52	-31
E94512	Manaia Dem. Farm	15	34	53	9	9	-64	-27	-79	-93	-114	-67	-73
E94526	Normanby	3	43	50	64	53	-10	-22	-22	-154	-104	-95	-72
E94743	Patea	17	56	76	52	11	4	-14	-19	-66	-66	-42	-42
E95451	Karioi	38	80	105	101	60	15	21	14	-38	-39	-46	-14
E95464	Waiouru	1	66	55	9	-16	-49	-80	-63	-145	-106	-108	-67
E95465	Waiouru Military Camp	8	76	59	38	29	-7	-14	-19	-84	-83	-82	-52
E95783	Kahui, Taihape	92	143	145	112	78	63	65	64	16	33	10	18
E95902	Wanganui	86	145	134	94	93	70	80	81	32	26	14	30
F03501	Farewell Spit	-21	24	28	20	2	-42	-29	-40	-88	-84	-129	-80
F03801	Totaranui	111	117	132	168	155	92	100	129	64	21	35	8
F11752	Westport Airport	50	107	136	117	83	60	85	65	42	3	-23	-7
F12162	Cobb Dam	52	119	123	97	84	78	73	73	1	30	-44	-19
F12214	Karamea	60	78	115	106	50	4	-15	1	41	37	21	42
F12752	Lake Rotoroa	39	96	111	113	79	79	50	75	11	39	-60	16
F12835	Murchison	98	149	107	70	43	16	25	27	67	65	34	49
F20793	Hokitika Airport	-7	61	74	72	46	34	24	21	-8	-46	-69	-66
F21182	Reefton	28	62	63	52	17	3	-9	23	10	-17	-55	-49
F21361	Totara Flat	36	63	79	36	20	18	9	10	6	6	-28	-21
F21851	Otira Substation	-46	31	22	27	35	-31	-14	-60	-67	-85	-114	-80
F30153	Hari Hari	49	107	125	124	94	51	47	70	51	11	-8	-12
F39801	Haast	23	90	81	79	33	-46	-19	-33	2	-31	-52	-43
F66161	Puysegur Point	-642	-398	-178	-331	-230	-217	-276	-486	-541	-587	-545	-468
G04601	Stephens Is.	-158	-141	-160	-136	-167	-288	-194	-269	-259	-293	-244	-187
G12191	Riwaka, Motueka	111	159	151	134	92	63	74	58	58	65	20	31
G12382	Tapawera	88	99	92	92	43	46	13	11	-13	36	-3	32
G13081	Brightlands Bay	55	78	79	100	70	71	106	37	-1	-23	-38	12
G13211	Appleby	93	130	142	136	122	102	114	97	50	25	-4	15
G13222	Nelson Airport	87	148	137	148	136	108	131	118	64	36	-9	16
G13251	Rai Valley	86	108	89	66	23	-1	3	-4	13	26	-11	15
G13301	Moutere Hills	62	103	110	80	19	-12	12	9	10	0	-26	3
G13592	Blenheim	59	103	85	85	56	12	29	16	6	20	-25	-4
G13595	Wither Hills, Blenheim	90	116	102	112	92	55	72	61	26	38	5	2
G13651	Waihopai Power Station	168	230	195	178	116	100	120	102	111	124	81	108
G14501	Vernon Lagoons	33	73	51	52	18	-24	-10	-9	-41	-13	-50	-34
G14711	Lake Grassmere	-15	32	20	24	34	8	14	-21	-79	-94	-99	-89
G14721	Cape Campbell	-113	-67	-79	-72	-120	-168	-136	-172	-198	-194	-193	-181
G22581	Hanmer Forest	74	134	142	126	93	78	80	70	42	48	5	12

Mean monthly **HEBIDEX** at **0900 hours** Clothing level 0.6 clo Metabolic rate 90 W sq m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
G23021 Molesworth	-5	93	65	72	51	16	21	-30	-61	-69	-69	-79
G23471 Kaikoura	3	74	82	66	42	-13	-2	-39	-32	-36	-67	-48
H21951 Arthurs Pass	-140	-43	-49	-24	-8	9	-51	-64	-151	-141	-156	-165
H22962 Hawarden	73	105	120	114	89	86	79	64	17	33	10	5
H23603 Waiau	75	151	130	142	84	57	68	64	44	56	18	31
H30841 Godley Peaks, Tekapo	47	118	149	119	111	56	53	98	6	-22	11	-17
H30941 Mt John	-208	-41	-11	-83	-148	-239	-150	-127	-274	-323	-237	-255
H31172 Craigieburn Forest	-17	60	50	79	71	59	44	36	-24	-33	-95	-61
H31173 Camp Stream	-104	-1	-26	8	-4	-191	-136	-28	-160	-122	-153	-157
H31352 Lake Coleridge	36	107	113	133	130	109	118	100	43	23	-19	-30
H31572 Highbank Power Station	-105	-30	-10	-14	-50	-56	-110	-113	-146	-136	-154	-155
H31593 Hororata Substation	29	91	102	110	80	50	35	38	3	13	-19	-21
H31883 Winchmore	58	101	123	136	110	91	71	62	33	44	13	6
H31927 Peel Forest	34	98	110	162	131	101	83	97	59	24	-10	-11
H31971 Ashburton	60	118	144	166	143	141	127	101	43	52	14	9
H32073 Waipara	54	112	123	141	91	88	77	38	31	43	-8	-2
H32252 Ashley Forest	44	91	122	143	136	79	57	49	22	28	-9	-13
H32352 Rangiora	-16	42	56	72	23	3	-19	-24	-25	-41	-59	-65
H32412 Darfield	31	69	90	115	85	83	62	51	31	21	-14	-29
H32424 Eyrewell Forest	16	91	111	149	111	95	80	45	19	13	-17	-28
H32451 Christchurch Airport	-53	13	31	50	20	14	-26	-33	-63	-72	-103	-101
H32542 Templeton	-7	38	46	70	52	4	-11	-11	-34	-58	-74	-76
H32561 Christchurch	44	108	125	168	153	133	126	81	79	44	1	1
H32573 Bromley, Christchurch	14	87	90	98	94	57	57	46	23	5	-32	-38
H32574 Mt Pleasant	-37	31	41	80	65	59	26	-18	-27	-35	-63	-79
H32641 Lincoln	-22	36	49	52	27	9	-4	-16	-45	-57	-83	-74
H32643 Lincoln No 3	-31	22	29	27	-43	-17	4	19	1	-5	-49	-24
H32893 Akaroa	40	90	76	103	94	64	11	45	29	0	-50	-32
H40041 Lake Tekapo	45	120	129	116	100	81	52	66	4	-1	-19	-15
H40112 Lake Pukaki	44	103	107	92	70	27	17	43	-14	-28	-32	-40
H40182 Fairlie	52	136	160	135	118	133	122	117	69	60	-6	-8
H40183 Fairlie	53	93	110	103	119	103	138	105	68	77	25	22
H40211 Twizel	44	122	117	116	101	92	95	78	32	-14	-32	-29
H40321 Haldon Station	178	208	147	176	107	164	112	169	57	93	24	-4
H40892 Ikawai	44	109	140	139	108	75	58	50	43	38	-30	-17
H41127 Geraldine	51	117	132	153	132	118	105	83	65	41	6	4
H41131 Orari Estate	13	83	102	121	93	85	72	60	26	14	-46	-37
H41224 Temuka	-3	67	87	97	60	23	39	21	19	28	-45	-35
H41411 Adair	29	81	81	103	96	66	47	56	33	31	-29	-31
H41421 Timaru	-9	43	61	88	72	41	39	39	0	-17	-54	-64
I40742 Kurow	-35	44	53	46	48	9	-2	23	-48	-3	-53	-69
I40751 Otiake Farm	-24	22	33	6	-37	-83	-69	-79	-42	-43	-131	-81
I40961 Livingstone Substation	35	102	117	127	74	79	69	75	33	-12	-35	-32
I41901 Oamaru Airport	-70	-4	25	20	-17	-75	-62	-56	-49	-79	-112	-116
I49591 Tarahills, Omarama	15	79	88	81	43	13	12	-1	7	-38	-48	-62
I49621 Lake Hawea	-166	-68	-71	-98	-126	-162	-145	-146	-232	-218	-208	-229
I49822 Queensberry	-2	69	76	86	58	31	36	46	-17	-4	-57	-64
I49932 Bendigo	-18	66	72	54	15	18	-10	22	-45	-18	-67	-75
I50012 Naseby Forest	-7	65	113	109	78	85	66	59	-3	-32	-55	-62
I50113 Ranfurly	-16	37	67	55	21	48	-10	-5	-63	-88	-106	-105
I50272 Herbert Forest	15	76	111	114	76	64	54	59	36	4	-33	-42
I50471 Palmerston	-35	58	86	102	89	87	66	59	23	-37	-98	-104
I50662 Cherry Farm Hospital	35	57	98	90	87	52	42	40	23	-5	-47	-45
I50771 Taiaroa Head	-268	-191	-149	-181	-281	-302	-312	-278	-290	-365	-392	-358
I50831 Invermay, Taieri	-14	65	111	79	69	68	85	64	45	-48	-76	-70
I50835 Invermay, Taieri	-39	37	64	115	77	26	36	45	-34	-57	-112	-88
I50901 Berwick Forest	-18	68	115	114	62	62	58	41	1	-32	-61	-59
I50921 Dunedin Airport	-80	-1	28	26	-40	-35	-25	-39	-72	-106	-136	-122
I50951 Musselburgh, Dunedin	-21	58	91	107	73	77	64	33	34	-20	-80	-76
I51002 Oamaru, Iona Hospital	4	22	74	60	42	30	52	3	1	-58	-49	-84
I57522 West Arm, Manapouri	-42	47	72	76	83	80	74	58	26	-28	-60	-55
I57751 Borland Burn	-29	47	70	66	63	47	34	25	3	-22	-57	-76
I58074 Queenstown Airport	-14	47	70	24	-29	-50	-47	-41	-30	-39	-59	-76
I58552 Mid Dome	-27	42	37	28	30	16	2	-10	-1	-61	-65	-97
I59021 Cromwell	0	66	117	98	58	47	65	89	24	-23	-51	-44
I59023 Northburn	6	74	96	78	2	4	13	49	-18	-8	-55	-44
I59132 Clyde	94	106	164	137	110	76	35	93	99	36	33	19
I59133 Clyde Dam	-28	53	28	-8	-37	-36	-27	-16	-11	-14	-58	-50
I59161 Ophir	33	107	144	103	84	77	66	86	34	-10	-32	-26
I59162 Moa Creek	56	133	160	133	94	82	109	106	67	34	2	-2
I59232 Earnscleugh	-18	59	104	98	53	25	49	53	20	-34	-53	-41
I59431 Roxburgh Power Station	-7	65	87	64	30	18	21	31	27	-43	-69	-48
I59722 Moa Flat	-193	-113	-90	-114	-194	-182	-218	-194	-180	-234	-263	-269
I59891 Mahinerangi Dam	-110	-37	-21	2	-59	-39	-69	-69	-106	-115	-159	-165
I59921 Tapanui	76	104	118	81	22	3	34	27	18	-5	0	57
I59941 Rankleburn Forest	-77	2	35	29	-64	-54	-52	-33	-75	-97	-128	-121
I60021 Taiere North	-97	-17	22	16	-64	-48	-82	-48	-81	-119	-148	-132
I68102 Otautau	-39	49	92	89	60	63	67	78	24	-39	-86	-77
I68133 Winton	-67	10	42	30	-23	-4	1	0	-50	-92	-113	-109
I68192 Gore	-138	-62	-34	-56	-74	-94	-88	-86	-145	-180	-205	-181
I68252 Hokonui Forest	-82	21	51	40	-10	13	-1	13	-67	-98	-131	-115
I68362 Woodlands	-113	-11	22	6	-2	8	26	18	-71	-91	-140	-118
I68433 Invercargill Airport	-194	-93	-49	-61	-92	-86	-77	-62	-149	-186	-220	-203
I68533 Tiwai Point, Bluff	-236	-118	-86	-126	-156	-164	-95	-98	-188	-262	-293	-235
I69191 Milton	-71	32	57	65	48	50	39	30	-11	-67	-121	-106
I69273 Finegand, Balclutha	-92	-9	22	-3	-38	-34	-19	8	-61	-107	-146	-115
I69464 Owaka	-83	35	65	68	44	32	19	27	-52	-58	-113	-96
I69481 Nugget Point	-289	-192	-175	-231	-320	-351	-360	-333	-331	-352	0	0
I69544 Tautuku	-110	-7	22	3	-1	3	-7	14	-73	-97	-149	-102

Mean monthly CLODEX at 0900 hours Metabolic rate 90 W sq m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A53021 Kaitaia Airport	0.6	0.5	0.6	0.7	0.8	1.1	1.2	1.2	1.2	1.1	1.0	0.8
A53024 Aupouri Forest	0.6	0.4	0.5	0.6	0.7	0.9	1.0	1.0	1.1	1.1	1.0	0.8
A53123 Kaitaia	0.7	0.6	0.7	0.9	1.3	1.4	1.6	1.5	1.2	1.1	0.9	0.8
A53352 Umawera No 2	0.4	0.3	0.3	0.5	0.6	0.8	0.9	0.9	0.9	0.9	0.8	0.6
A53354 Umawera	0.5	0.4	0.5	0.9	0.8	1.0	1.2	1.2	1.1	1.1	0.9	0.6
A53461 Punakitere	0.5	0.5	0.5	0.7	0.8	1.1	1.3	1.2	1.1	1.1	0.9	0.8
A53482 Kaikohe	0.7	0.6	0.7	0.8	0.9	1.1	1.2	1.3	1.4	1.3	1.2	1.0
A53541 Waiotemarama	0.8	0.6	0.6	0.8	1.0	1.2	1.3	1.4	1.4	1.3	1.3	1.0
A53982 Dargaville	0.6	0.4	0.4	0.6	0.8	0.9	1.1	1.0	1.1	1.0	0.9	0.8
A54201 Waitangi Forest	0.3	0.3	0.3	0.4	0.5	0.7	0.8	0.7	0.8	0.8	0.7	0.5
A54601 Puketurua, Northland	0.6	0.5	0.5	0.6	0.8	0.9	1.1	1.0	1.1	1.1	0.9	0.8
A54631 Glenbervie Forest	0.5	0.4	0.4	0.4	0.5	0.8	0.9	0.9	0.9	0.9	0.8	0.7
A54733 Whangarei Airport	0.6	0.5	0.5	0.6	0.8	1.0	1.1	1.0	1.1	1.0	0.9	0.8
A54734 Whangarei	0.4	0.4	0.4	0.4	0.6	0.8	0.9	0.9	0.9	0.9	0.8	0.7
A54842 Marsden Power Station	0.4	0.3	0.4	0.5	0.6	0.8	0.9	0.9	0.9	0.8	0.7	0.5
A55911 Mokohinau	0.8	0.7	0.7	0.9	1.1	1.3	1.4	1.3	1.4	1.3	1.1	1.0
A64212 Pouto	0.6	0.6	0.4	0.4	0.8	0.9	1.1	1.0	1.3	1.2	1.2	0.8
A64282 Leigh	0.5	0.5	0.5	0.6	0.7	0.9	1.0	1.0	1.0	1.0	0.9	0.8
A64463 Warkworth	0.6	0.5	0.5	0.6	0.8	1.0	1.2	1.1	1.2	1.1	1.0	0.9
A64542 Oyster Point	0.4	0.4	0.4	0.5	0.8	0.7	0.9	0.8	1.0	1.0	0.9	0.6
A64741 Woodhill Forest	0.5	0.4	0.4	0.5	0.6	0.9	0.9	0.9	1.0	1.0	0.9	0.8
A64751 Riverhead Forest	0.5	0.5	0.5	0.5	0.8	0.9	1.1	1.0	1.1	1.1	1.0	0.8
A64754 Kumeu	0.6	0.6	0.6	0.7	0.9	1.1	1.2	1.2	1.2	1.1	1.0	0.8
A64761 Whenuapai	0.6	0.5	0.5	0.6	0.8	1.0	1.1	1.1	1.1	1.1	0.9	0.8
A64871 Albert Park, Auckland	0.6	0.5	0.5	0.7	0.8	1.1	1.2	1.2	1.2	1.1	1.0	0.8
A64961 Oratia, Auckland	0.6	0.4	0.4	0.6	0.7	1.0	1.1	1.1	1.1	1.1	0.9	0.8
A64971 Owairaka, Auckland	0.5	0.5	0.5	0.6	0.8	0.9	1.1	1.1	1.1	1.1	1.0	0.8
A65132 Port Fitzroy	0.5	0.5	0.4	0.6	0.8	1.0	1.1	1.1	1.1	1.0	0.9	0.7
B65741 Coromandel	0.6	0.6	0.6	0.6	0.9	1.0	1.1	1.1	1.2	1.1	1.0	0.8
B65761 Whangapoua Forest	0.4	0.3	0.3	0.4	0.7	0.8	0.9	0.9	0.9	0.8	0.8	0.6
B75152 Thames	0.4	0.4	0.4	0.5	0.8	1.0	1.0	0.8	0.9	0.9	0.8	0.5
B75182 Tairua Forest	0.4	0.4	0.4	0.4	0.6	0.8	0.9	0.9	0.8	0.9	0.8	0.6
B75252 Ngatea	0.4	0.3	0.4	0.6	0.9	1.1	1.2	1.2	1.0	0.7	0.6	0.6
B75361 Paeroa	0.4	0.3	0.3	0.4	0.7	0.9	1.0	0.9	0.9	0.9	0.8	0.6
B75381 Waihi	0.5	0.4	0.4	0.5	0.8	1.0	1.1	1.0	1.0	1.0	0.9	0.7
B75571 Te Aroha	0.5	0.4	0.4	0.6	1.0	1.1	1.2	1.2	1.1	0.8	0.8	0.7
B75572 Mt Te Aroha TV Station	0.7	0.7	0.8	0.9	1.2	1.3	1.5	1.4	1.3	1.1	1.2	0.8
B75592 Katikati	0.3	0.4	0.3	0.3	0.4	0.6	0.8	0.8	0.9	0.8	0.9	0.5
B76621 Tauranga Airport	0.6	0.5	0.5	0.7	1.0	1.2	1.3	1.2	1.1	1.0	0.9	0.8
B76835 Te Puke	0.6	0.5	0.5	0.7	0.8	1.0	1.1	1.1	1.0	1.0	1.0	0.8
B76951 Rotoehu Forest	0.5	0.4	0.4	0.5	0.8	1.1	1.1	1.1	1.0	0.9	0.9	0.7
B76984 Edgecumbe	0.5	0.5	0.5	0.8	1.1	1.2	1.3	1.3	1.1	0.9	0.9	0.7
B76993 Whakatane	0.4	0.3	0.4	0.5	0.9	1.1	1.2	1.0	0.9	0.8	0.7	0.6
B77911 Port Ohope	0.3	0.3	0.3	0.3	0.6	0.9	0.9	0.8	0.9	0.8	0.8	0.6
B85285 Kinleith	0.9	0.7	0.8	1.0	1.3	1.5	1.5	1.6	1.5	1.4	1.3	1.1
B86034 Tikitere	0.8	0.7	0.7	0.9	1.2	1.3	1.5	1.4	1.4	1.3	1.2	1.0
B86071 Kawerau	0.5	0.4	0.4	0.6	1.0	1.3	1.3	1.2	1.0	0.9	0.9	0.7
B86083 Te Teko	0.4	0.4	0.4	0.7	1.0	1.2	1.1	1.1	0.9	0.8	0.7	0.6
B86124 Whakarewarewa	0.8	0.7	0.8	1.0	1.2	1.4	1.4	1.4	1.3	1.3	1.2	1.0
B86131 Rotorua Airport	0.7	0.6	0.6	0.8	1.1	1.3	1.4	1.3	1.3	1.3	1.1	1.0
B86341 Waiotapu	0.8	0.6	0.7	0.8	1.1	1.3	1.3	1.4	1.4	1.3	1.2	1.0
B86403 Atiamuri Power Station	0.7	0.6	0.7	1.0	1.5	1.5	1.6	1.5	1.3	1.1	1.0	0.9
B86451 Kaingaroa Forest	1.0	0.8	0.9	1.1	1.4	1.5	1.6	1.6	1.6	1.5	1.4	1.2
B86612 Wairakei Research Station	0.8	0.6	0.6	0.9	1.2	1.3	1.4	1.4	1.3	1.2	1.2	1.0
B86821 Waimihia Forest	1.1	1.0	1.0	1.2	1.4	1.6	1.7	1.7	1.7	1.6	1.5	1.3
C64971 Mangere, Auckland	0.6	0.4	0.4	0.6	0.7	0.9	1.0	1.0	1.1	1.0	0.9	0.8
C64981 Otara, Auckland	0.6	0.5	0.5	0.6	0.8	1.0	1.1	1.1	1.2	1.1	1.0	0.8
C65921 Orere Point	0.6	0.4	0.4	0.6	0.8	1.0	1.3	0.9	1.0	0.9	0.7	0.7
C74082 Auckland Airport	0.7	0.5	0.6	0.7	0.9	1.2	1.3	1.2	1.2	1.1	1.0	0.9
C74091 Ardmore	0.5	0.4	0.4	0.6	0.8	1.0	1.1	1.1	1.2	1.0	0.9	0.7
C74282 Pukekohe	0.5	0.4	0.5	0.6	0.8	1.0	1.1	1.1	1.1	1.0	0.9	0.8
C74371 Maioro Forest	0.6	0.5	0.6	0.6	0.8	1.0	1.1	1.1	1.1	1.1	1.0	0.8
C75003 Hunua	0.6	0.5	0.6	0.6	0.9	0.9	1.1	1.0	1.2	1.1	1.1	0.8
C75202 Mercer	0.5	0.4	0.5	0.7	0.9	1.0	1.1	0.9	1.0	1.0	0.9	0.7
C75321 Maramarua Forest	0.5	0.4	0.4	0.5	0.8	0.9	1.1	1.0	1.0	1.0	0.9	0.8
C75412 Te Kauwhata	0.6	0.5	0.6	0.8	1.1	1.2	1.2	1.3	1.2	1.1	1.0	0.9
C75731 Ruakura, Hamilton	0.6	0.5	0.6	0.8	1.1	1.2	1.3	1.3	1.2	1.1	1.0	0.9
C75801 Whatawhata	0.6	0.5	0.5	0.7	1.0	1.2	1.3	1.2	1.2	1.1	1.0	0.8
C75831 Rukuhia	0.6	0.6	0.6	0.8	1.1	1.3	1.4	1.3	1.2	1.1	1.0	0.9
C75953 Cambridge	0.6	0.4	0.4	0.6	0.9	1.1	1.2	1.1	1.1	1.0	0.9	0.8
C84173 Port Taharoa	0.7	0.6	0.6	0.7	1.0	1.1	1.3	1.2	1.1	1.1	1.0	0.9
C84761 Mohakatino Station, Mokau	0.7	0.7	0.7	0.9	1.2	1.3	1.4	1.4	1.3	1.1	1.1	0.9
C85061 Arapuni Power Station	0.6	0.5	0.5	0.8	1.1	1.3	1.4	1.3	1.1	1.0	0.9	0.8
C85132 Waikeria	0.6	0.6	0.7	0.8	1.2	1.4	1.5	1.4	1.3	1.2	1.2	0.9
C85141 Waikeria	0.6	0.4	0.5	0.7	0.8	1.0	1.1	1.0	0.9	0.9	0.8	0.7
C85314 Te Kuiti	0.5	0.4	0.4	0.5	0.8	1.0	1.1	1.0	1.0	0.9	0.9	0.8
C85551 Pureora Forest	1.0	0.8	0.9	1.0	1.2	1.3	1.5	1.5	1.5	1.4	1.4	1.3
C85821 Taumaranui	0.7	0.6	0.6	1.0	1.4	1.6	1.7	1.5	1.2	1.0	0.9	0.8
C94002 Omata	0.7	0.5	0.6	0.6	0.9	1.1	1.1	1.1	1.1	1.0	1.0	0.8
C94003 New Plymouth	0.6	0.5	0.5	0.7	1.0	1.1	1.1	1.1	1.2	1.0	1.0	0.9
C94011 New Plymouth Airport	0.8	0.7	0.8	1.0	1.2	1.5	1.6	1.5	1.4	1.3	1.1	1.0
C94025 Tikorangi	0.7	0.6	0.7	0.8	1.0	1.1	1.3	1.4	1.3	1.0	1.1	0.9
C94262 Te Wera Forest	0.8	0.6	0.7	0.8	1.0	1.2	1.3	1.3	1.2	1.2	1.1	1.0
C95022 Lower Retaruke	0.6	0.5	0.6	0.8	1.1	1.3	1.3	1.2	1.1	1.1	1.0	0.8
C95085 Turangi	0.7	0.5	0.6	0.8	1.1	1.4	1.4	1.3	1.3	1.2	1.1	1.0
C95086 Tongariro Prison Farm	0.7	0.6	0.6	0.7	1.0	1.2	1.2	1.2	1.3	1.2	1.1	1.0
D05383 Ballantrae, Woodville	0.9	0.8	0.9	0.9	1.2	1.3	1.4	1.4	1.4	1.2	1.2	1.0
D05481 Mongamutu, Pahiatua	0.8	0.6	0.7	0.9	1.1	1.2	1.3	1.3	1.2	1.2	1.1	1.0
D05765 Mt Bruce Reserve	0.9	0.7	0.8	0.9	1.2	1.4	1.4	1.4	1.3	1.3	1.2	1.1

Mean monthly CLODEX at 0900 hours Metabolic rate 90 W sq m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
D05964 Waingawa, Masterton	0.7	0.6	0.7	0.9	1.2	1.4	1.4	1.4	1.2	1.1	1.0	0.9
D06022 Kopua	1.0	0.8	0.9	1.0	1.3	1.5	1.6	1.5	1.5	1.4	1.3	1.2
D06051 Waipukurau	0.6	0.6	0.6	0.7	1.1	1.3	1.4	1.3	1.2	1.0	0.9	0.8
D06212 Dannevirke	0.9	0.8	0.8	1.0	1.3	1.4	1.5	1.5	1.4	1.3	1.3	1.2
D06921 Castlepoint	0.9	0.8	0.8	1.0	1.2	1.4	1.4	1.4	1.4	1.3	1.2	1.1
D15062 East Taratahi	0.7	0.5	0.7	0.8	1.1	1.4	1.4	1.3	1.2	1.1	1.0	0.9
D15081 Ngaumu Forest	0.7	0.6	0.7	0.8	1.0	1.2	1.2	1.1	1.1	1.1	1.1	1.0
D15134 Tauherenikau, Alloa	0.6	0.5	0.5	0.7	1.0	1.2	1.2	1.2	1.1	1.0	0.9	0.8
D15163 Gladstone, Arahura	0.6	0.4	0.5	0.6	0.8	1.1	1.1	1.1	1.0	0.8	0.9	0.8
D15211 Waiorongomai	0.9	0.7	0.8	0.9	1.2	1.4	1.4	1.4	1.4	1.3	1.2	1.1
D15631 Cape Palliser	0.8	0.7	0.8	0.9	1.2	1.3	1.4	1.3	1.3	1.2	1.2	1.1
D78751 East Cape	0.7	0.6	0.6	0.7	1.0	1.2	1.2	1.2	1.1	1.1	1.0	0.8
D78931 Ruatoria	0.4	0.4	0.4	0.5	0.7	1.0	1.0	1.0	0.8	0.8	0.8	0.6
D87681 Waerenga O Kuri	0.6	0.5	0.6	0.8	1.1	1.3	1.3	1.3	1.2	1.0	1.1	0.8
D87683 Manutuke, Gisborne	0.6	0.5	0.5	0.7	1.0	1.2	1.3	1.2	1.1	0.9	0.9	0.7
D87862 Whakapunake TV Station	1.0	0.7	0.8	0.9	1.2	1.2	1.7	1.4	1.3	1.2	1.2	1.0
D87881 Wharerata Forest	0.7	0.8	0.9	0.8	1.0	1.0	1.1	1.1	0.9	1.2	1.1	0.9
D96241 Makahu Saddle	1.2	1.0	1.2	1.5	1.5	1.7	1.8	1.9	1.6	1.4	1.3	1.2
D96272 Esk Forest	0.8	0.7	0.7	0.9	1.1	1.3	1.4	1.4	1.3	1.2	1.1	1.0
D96382 Tangoio	0.5	0.4	0.5	0.6	0.8	1.0	1.0	1.0	0.9	0.7	0.7	0.7
D96444 Kaweka Forest	0.7	0.6	0.6	0.8	1.1	1.3	1.3	1.3	1.2	1.2	1.0	0.9
D96591 Napier	0.5	0.5	0.5	0.7	1.0	1.2	1.2	1.2	1.0	0.9	0.8	0.7
D96743 Gwavas Forest	0.7	0.6	0.6	0.7	0.9	1.2	1.2	1.2	1.1	1.1	1.0	0.9
D96931 Makaretu	0.7	0.6	0.5	0.7	1.0	1.3	1.3	1.3	1.2	1.0	0.9	0.9
D97004 Mohaka Forest	0.6	0.5	0.5	0.7	0.9	1.2	1.2	1.2	1.1	1.0	0.9	0.8
D97042 Frasertown, Wairoa	0.4	0.4	0.4	0.6	0.9	1.1	1.1	1.0	0.9	0.8	0.7	0.6
D97043 Wairoa	0.5	0.5	0.5	0.8	1.1	1.2	1.4	1.4	1.1	0.9	0.8	0.7
D97381 Portland Is	0.8	0.7	0.7	0.9	1.2	1.3	1.4	1.4	1.3	1.3	1.1	0.9
E04891 Kapiti Is	0.9	0.9	0.9	1.0	1.3	1.5	1.5	1.5	1.5	1.3	1.3	1.1
E04991 Paraparaumu Airport	0.9	0.8	0.7	0.8	1.2	1.4	1.4	1.3	1.3	1.3	1.2	1.1
E05221 Flockhouse, Bulls	0.8	0.6	0.6	0.8	1.0	1.3	1.3	1.3	1.3	1.2	1.1	0.9
E05231 Ohakea	0.9	0.8	0.8	1.0	1.3	1.5	1.5	1.5	1.4	1.3	1.2	1.1
E05282 Wharite Peak	1.7	1.7	1.7	1.9	2.3	2.4	2.5	2.5	2.4	2.2	2.1	1.9
E05363 Palmerston North DSIR	0.8	0.7	0.6	0.8	1.1	1.3	1.3	1.3	1.3	1.2	1.2	1.0
E05521 Waitarere Forest	0.8	0.6	0.7	0.8	1.1	1.3	1.3	1.3	1.3	1.2	1.1	1.0
E05622 Levin	0.7	0.5	0.5	0.7	1.0	1.3	1.3	1.3	1.2	1.2	1.1	0.9
E05628 Hokio Beach School	0.7	0.5	0.5	0.8	1.0	1.3	1.3	1.3	1.2	1.1	1.0	0.9
E14185 Porirua	0.9	0.9	0.8	1.0	1.2	1.4	1.3	1.4	1.4	1.4	1.3	1.2
E14192 Taita, Lower Hutt	0.8	0.6	0.6	0.8	1.0	1.2	1.2	1.3	1.3	1.2	1.1	1.0
E14195 Avalon, Lower Hutt	0.8	0.8	0.8	0.9	1.3	1.5	1.5	1.5	1.4	1.3	1.2	1.0
E14197 Pauatahanui	0.8	0.7	0.8	0.9	1.2	1.4	1.4	1.4	1.4	1.3	1.2	1.0
E14272 Kelburn, Wellington	1.1	1.0	1.0	1.1	1.3	1.5	1.5	1.5	1.5	1.5	1.4	1.3
E14273 Makara	1.2	1.1	1.2	1.3	1.5	1.6	1.7	1.7	1.7	1.7	1.5	1.3
E14279 Karori, Wellington	1.0	1.0	1.0	1.0	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.2
E14285 Somes Is	0.9	0.8	0.8	0.9	1.3	1.4	1.5	1.4	1.4	1.3	1.3	1.2
E14290 Gracefild, Lower Hutt	0.8	0.7	0.7	0.8	1.1	1.2	1.3	1.3	1.3	1.2	1.1	1.0
E14296 Wainuiomata	0.8	0.7	0.6	0.8	1.0	1.3	1.3	1.3	1.2	1.2	1.1	1.0
E14387 Wellington Airport	1.0	1.0	0.9	1.1	1.3	1.5	1.5	1.5	1.5	1.4	1.3	1.2
E15011 Kaitoke	0.8	0.8	0.7	0.8	1.1	1.4	1.3	1.4	1.4	1.3	1.2	1.1
E15102 Wallaceville	0.8	0.7	0.7	0.9	1.2	1.4	1.4	1.4	1.4	1.3	1.2	1.1
E93271 Cape Egmont	0.8	0.7	0.7	0.9	1.1	1.3	1.4	1.3	1.4	1.3	1.2	1.0
E94333 Stratford Dem. Farm	0.8	0.7	0.7	0.9	1.1	1.4	1.4	1.4	1.4	1.2	1.2	1.1
E94512 Manaia Dem. Farm	0.8	0.7	0.7	1.0	1.1	1.4	1.4	1.4	1.4	1.3	1.2	1.0
E94526 Normanby	0.8	0.8	0.8	0.9	1.1	1.4	1.4	1.4	1.5	1.3	1.2	1.1
E94743 Patea	0.8	0.7	0.7	0.8	1.1	1.3	1.4	1.3	1.3	1.2	1.1	1.0
E95451 Karioi	0.9	0.8	0.8	1.0	1.3	1.5	1.6	1.5	1.5	1.4	1.3	1.1
E95464 Waiouru	1.0	0.9	0.9	1.2	1.5	1.8	1.8	1.8	1.8	1.6	1.5	1.3
E95465 Waiouru Military Camp	1.1	0.9	1.0	1.2	1.5	1.7	1.8	1.7	1.8	1.6	1.5	1.3
E95783 Kahui, Taihape	0.7	0.6	0.6	0.9	1.2	1.4	1.4	1.4	1.4	1.2	1.2	1.0
E95902 Wanganui	0.6	0.5	0.5	0.7	1.0	1.2	1.2	1.2	1.1	1.0	1.0	0.8
F03501 Farewell Spit	0.9	0.8	0.8	1.0	1.2	1.4	1.5	1.5	1.3	1.2	1.2	1.1
F03801 Totaranui	0.6	0.5	0.5	0.5	0.8	1.1	1.1	1.0	0.9	1.0	0.9	0.8
F11752 Westport Airport	0.8	0.6	0.6	0.7	1.1	1.3	1.2	1.2	1.1	1.1	1.1	1.0
F12162 Cobb Dam	1.0	0.8	0.9	1.1	1.4	1.4	1.5	1.5	1.6	1.3	1.4	1.3
F12214 Karamea	0.6	0.6	0.5	0.6	0.8	1.0	1.1	1.1	0.9	0.8	0.8	0.7
F12752 Lake Rotoroa	0.9	0.7	0.8	0.9	1.2	1.3	1.5	1.2	1.4	1.0	1.3	1.0
F12835 Murchison	0.5	0.5	0.7	1.1	1.2	1.5	1.6	1.5	1.0	1.0	0.9	0.8
F20793 Hokitika Airport	1.0	0.8	0.8	0.9	1.3	1.4	1.5	1.4	1.3	1.3	1.3	1.2
F21182 Reefton	1.0	0.8	0.9	1.1	1.5	1.5	1.7	1.6	1.4	1.3	1.3	1.2
F21361 Totara Flat	0.9	0.8	0.9	1.2	1.5	1.6	1.7	1.7	1.4	1.2	1.2	1.1
F21851 Otira Substation	1.2	1.0	1.1	1.1	1.4	1.5	1.6	1.6	1.6	1.5	1.5	1.4
F30153 Hari Hari	0.9	0.7	0.7	0.8	1.2	1.4	1.5	1.4	1.2	1.1	1.2	1.1
F39801 Haast	0.9	0.7	0.8	0.9	1.3	1.7	1.6	1.6	1.3	1.3	1.3	1.2
F66161 Puysegur Point	1.6	1.3	1.3	1.4	1.6	1.6	1.8	1.9	1.8	1.8	1.7	1.7
G04601 Stephens Is.	1.1	1.0	1.1	1.1	1.3	1.4	1.5	1.5	1.5	1.5	1.4	1.3
G12191 Riwaka, Motueka	0.6	0.5	0.5	0.8	1.1	1.4	1.4	1.4	1.1	0.9	1.0	0.8
G12382 Tapawera	0.8	0.7	0.8	1.1	1.4	1.5	1.9	1.7	1.4	1.2	1.2	0.9
G13081 Brightlands Bay	0.7	0.6	0.6	0.7	0.9	0.9	0.9	1.1	1.0	1.1	1.0	0.9
G13211 Appleby	0.6	0.5	0.6	0.7	1.0	1.2	1.3	1.2	1.1	1.0	1.0	0.9
G13222 Nelson Airport	0.6	0.5	0.6	0.7	1.0	1.3	1.3	1.2	1.1	1.0	1.0	0.8
G13251 Rai Valley	0.7	0.6	0.8	1.0	1.4	1.6	1.7	1.7	1.3	1.1	1.1	0.9
G13301 Moutere Hills	0.7	0.6	0.7	0.9	1.3	1.5	1.5	1.4	1.2	1.1	1.1	0.9
G13592 Blenheim	0.7	0.6	0.7	0.9	1.3	1.5	1.6	1.5	1.2	1.0	1.0	0.9
G13595 Wither Hills, Blenheim	0.6	0.6	0.7	0.8	1.1	1.4	1.4	1.3	1.1	1.0	1.0	0.9
G13651 Waihopai Power Station	0.5	0.4	0.5	0.7	1.1	1.3	1.3	1.3	1.0	0.8	0.8	0.7
G14501 Vernon Lagoons	0.8	0.7	0.8	1.0	1.4	1.6	1.6	1.6	1.3	1.1	1.1	1.0
G14711 Lake Grassmere	0.9	0.7	0.8	0.9	1.1	1.3	1.4	1.4	1.2	1.2	1.1	1.0
G14721 Cape Campbell	1.1	0.9	1.0	1.1	1.4	1.5	1.6	1.6	1.4	1.4	1.3	1.2
G22581 Hanmer Forest	0.8	0.6	0.7	0.9	1.3	1.4	1.4	1.4	1.2	1.1	1.1	1.0

Mean monthly CLODEX at 0900 hours Metabolic rate 90 W sq m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
G23021 Molesworth	1.0	0.7	0.9	1.0	1.4	1.5	1.6	1.6	1.5	1.3	1.3	1.2
G23471 Kaikoura	0.9	0.7	0.8	0.9	1.1	1.3	1.4	1.4	1.3	1.2	1.2	1.1
H21951 Arthurs Pass	1.5	1.2	1.4	1.3	1.6	1.5	1.6	1.7	1.8	1.7	1.7	1.6
H22962 Hawarden	0.6	0.5	0.7	0.7	1.1	1.1	1.3	1.3	1.1	1.0	1.0	0.8
H23603 Waiau	0.7	0.6	0.7	0.9	1.3	1.4	1.3	1.4	1.2	1.0	1.0	0.9
H30841 Godley Peaks, Tekapo	0.8	0.6	0.6	0.7	1.1	1.6	1.6	1.2	1.0	0.9	0.7	0.8
H30941 Mt John	1.2	0.9	1.1	1.3	1.6	1.6	1.5	1.6	1.6	1.5	1.4	1.5
H31172 Craigieburn Forest	1.2	0.9	1.1	1.2	1.4	1.5	1.6	1.5	1.6	1.5	1.4	1.4
H31173 Camp Stream	1.5	1.1	1.4	1.4	1.6	1.9	1.6	1.4	1.6	1.8	1.7	1.7
H31352 Lake Coleridge	0.9	0.7	0.8	0.9	1.2	1.3	1.4	1.4	1.3	1.1	1.2	1.1
H31572 Highbank Power Station	1.3	1.0	1.1	1.2	1.5	1.6	1.8	1.8	1.7	1.6	1.5	1.5
H31593 Hororata Substation	0.9	0.8	0.8	0.9	1.3	1.5	1.6	1.5	1.3	1.2	1.2	1.1
H31883 Winchmore	0.8	0.7	0.7	0.8	1.1	1.3	1.4	1.4	1.2	1.1	1.1	1.0
H31927 Peel Forest	1.0	0.8	0.8	0.8	1.1	1.3	1.4	1.3	1.1	1.1	1.2	1.1
H31971 Ashburton	0.7	0.6	0.6	0.6	0.9	1.1	1.2	1.2	1.1	1.0	0.9	0.9
H32073 Waipara	0.7	0.6	0.7	0.7	1.0	1.2	1.1	1.2	1.1	0.9	1.0	0.9
H32252 Ashley Forest	0.9	0.7	0.7	0.8	1.0	1.3	1.4	1.3	1.2	1.1	1.1	1.0
H32352 Rangiora	0.9	0.8	0.9	0.9	1.4	1.5	1.6	1.6	1.3	1.2	1.1	1.1
H32412 Darfield	0.9	0.8	0.8	0.9	1.2	1.3	1.4	1.4	1.3	1.2	1.2	1.1
H32424 Eyrewell Forest	0.9	0.7	0.7	0.8	1.1	1.3	1.4	1.3	1.2	1.1	1.1	1.0
H32451 Christchurch Airport	1.1	0.9	1.0	1.1	1.4	1.6	1.7	1.6	1.5	1.4	1.3	1.2
H32542 Templeton	0.9	0.8	0.9	0.9	1.3	1.5	1.6	1.5	1.3	1.2	1.2	1.1
H32561 Christchurch	0.8	0.6	0.7	0.7	1.0	1.1	1.2	1.3	1.1	1.0	1.1	1.0
H32573 Bromley, Christchurch	0.9	0.7	0.7	0.8	1.1	1.4	1.4	1.4	1.2	1.1	1.1	1.0
H32574 Mt Pleasant	1.0	0.8	0.9	0.9	1.1	1.2	1.3	1.4	1.3	1.2	1.2	1.2
H32641 Lincoln	1.0	0.8	0.9	1.0	1.4	1.6	1.7	1.6	1.4	1.3	1.3	1.1
H32643 Lincoln No 3	1.1	0.9	0.9	1.1	1.5	1.7	1.4	1.4	1.3	1.2	1.2	1.1
H32893 Akaroa	0.8	0.7	0.7	0.8	1.0	1.2	1.3	1.3	1.1	1.0	1.1	0.9
H40041 Lake Tekapo	1.0	0.7	0.8	1.0	1.4	1.5	1.6	1.6	1.5	1.3	1.3	1.2
H40112 Lake Pukaki	0.9	0.7	0.8	1.0	1.3	1.6	1.6	1.6	1.4	1.3	1.2	1.2
H40182 Fairlie	0.9	0.7	0.7	0.9	1.2	1.4	1.4	1.4	1.2	1.1	1.2	1.1
H40183 Fairlie	1.0	0.9	1.0	1.2	1.2	1.4	1.4	1.3	1.2	1.2	1.3	1.2
H40211 Twizel	0.9	0.7	0.8	1.0	1.3	1.6	1.7	1.5	1.4	1.3	1.3	1.2
H40321 Haldon Station	0.3	0.1	0.4	0.5	0.4	1.0	1.4	1.2	1.1	0.9	0.7	0.7
H40892 Ikawai	0.9	0.7	0.7	0.8	1.2	1.4	1.5	1.5	1.2	1.1	1.2	1.1
H41127 Geraldine	0.9	0.7	0.8	0.8	1.1	1.3	1.4	1.4	1.2	1.1	1.1	1.1
H41131 Orari Estate	1.0	0.8	0.8	0.9	1.2	1.4	1.5	1.5	1.2	1.2	1.2	1.2
H41224 Temuka	1.0	0.7	0.8	0.9	1.2	1.5	1.6	1.5	1.2	1.1	1.2	1.1
H41411 Adair	0.9	0.7	0.9	0.9	1.2	1.4	1.4	1.4	1.2	1.1	1.2	1.1
H41421 Timaru	1.0	0.8	0.9	1.0	1.3	1.5	1.6	1.5	1.3	1.2	1.2	1.2
I40742 Kurow	1.0	0.9	1.0	1.1	1.4	1.5	1.7	1.6	1.4	1.1	1.2	1.1
I40751 Otiake Farm	1.1	0.9	1.1	1.1	1.5	1.5	1.6	1.8	1.3	1.2	1.3	1.2
I40961 Livingstone Substation	1.0	0.7	0.8	0.9	1.3	1.4	1.5	1.4	1.3	1.4	1.3	1.2
I41901 Oamaru Airport	1.0	0.8	0.9	1.0	1.3	1.6	1.6	1.5	1.3	1.2	1.2	1.1
I49591 Tara Hills, Omarama	0.9	0.7	0.8	1.0	1.4	1.6	1.7	1.7	1.3	1.3	1.2	1.1
I49621 Lake Hawea	1.2	1.0	1.2	1.3	1.8	1.9	2.1	2.0	1.7	1.4	1.2	1.4
I49822 Queensberry	0.9	0.7	0.9	1.0	1.4	1.6	1.7	1.6	1.4	1.2	1.2	1.1
I49932 Bendigo	1.0	0.7	0.9	1.2	1.6	1.7	1.9	1.6	1.4	1.2	1.2	1.2
I50012 Naseby Forest	1.2	0.9	0.9	1.1	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.4
I50113 Ranfurly	1.0	0.9	1.0	1.2	1.3	1.7	1.6	1.6	1.5	1.4	1.5	1.3
I50272 Herbert Forest	1.0	0.8	0.8	0.9	1.2	1.4	1.4	1.4	1.2	1.2	1.2	1.2
I50471 Palmerston	1.1	0.8	0.8	0.9	1.2	1.3	1.5	1.4	1.3	1.3	1.3	1.3
I50662 Cherry Farm Hospital	0.9	0.8	0.8	1.0	1.3	1.5	1.5	1.5	1.3	1.3	1.3	1.2
I50771 Taiaroa Head	1.4	1.2	1.3	1.4	1.6	1.7	1.8	1.8	1.7	1.7	1.7	1.6
I50831 Invermay, Taieri	1.0	0.8	0.8	1.0	1.2	1.3	1.4	1.4	1.2	1.4	1.3	1.2
I50835 Invermay, Taieri	0.9	0.7	0.8	0.9	1.2	1.5	1.4	1.4	1.4	1.3	1.4	1.3
I50901 Berwick Forest	1.1	0.8	0.8	0.9	1.3	1.4	1.5	1.4	1.3	1.3	1.3	1.2
I50921 Dunedin Airport	1.2	1.0	1.1	1.2	1.6	1.6	1.7	1.7	1.5	1.5	1.5	1.4
I50951 Musselburgh, Dunedin	1.1	0.8	0.8	0.9	1.2	1.3	1.3	1.4	1.2	1.3	1.3	1.3
I51002 Oamaru, Iona Hospital	0.9	0.8	0.9	1.0	1.3	1.4	1.5	1.5	1.3	1.3	1.2	1.2
I57522 West Arm, Manapouri	1.3	1.0	1.0	1.1	1.3	1.4	1.5	1.5	1.4	1.5	1.5	1.4
I57751 Borland Burn	1.1	0.9	0.9	1.1	1.2	1.3	1.6	1.5	1.4	1.3	1.3	1.3
I58074 Queenstown Airport	1.1	0.9	1.0	1.3	1.7	1.9	2.0	1.9	1.6	1.4	1.4	1.3
I58552 Mid Dome	1.1	0.9	1.0	1.1	1.3	1.4	1.5	1.5	1.1	1.2	1.2	1.0
I59021 Cromwell	0.9	0.8	0.8	1.0	1.4	1.7	1.6	1.5	1.3	1.3	1.2	1.1
I59023 Northburn	1.0	0.8	0.9	1.2	1.6	1.8	1.9	1.7	1.4	1.3	1.3	1.2
I59132 Clyde	0.8	0.8	0.8	1.0	1.3	1.6	1.4	1.4	1.2	1.3	1.1	0.9
I59133 Clyde Dam	1.1	0.9	1.2	1.5	1.7	2.0	2.0	1.9	1.5	1.4	1.4	1.3
I59161 Ophir	0.9	0.7	0.7	1.0	1.2	1.5	1.6	1.5	1.3	1.2	1.2	1.1
I59162 Moa Creek	0.8	0.6	0.6	0.8	1.0	1.1	1.2	1.1	0.9	0.8	1.0	0.9
I59232 Earnscleugh	1.0	0.8	0.8	1.1	1.4	1.6	1.7	1.4	1.3	1.3	1.2	1.1
I59431 Roxburgh Power Station	1.1	0.9	1.0	1.1	1.4	1.5	1.6	1.5	1.4	1.4	1.4	1.3
I59722 Moa Flat	1.6	1.4	1.5	1.6	1.9	1.9	2.0	2.0	1.9	2.0	1.9	1.8
I59891 Mahinerangi Dam	1.5	1.2	1.3	1.3	1.7	1.6	1.8	1.9	1.8	1.7	1.7	1.6
I59921 Tapanui	0.9	0.8	0.9	1.1	1.4	1.5	1.5	1.5	1.4	1.4	1.3	1.0
I59941 Rankleburn Forest	1.3	1.1	1.1	1.2	1.6	1.8	1.8	1.7	1.6	1.6	1.6	1.5
I60021 Taiere Mouth	1.3	1.0	1.0	1.1	1.5	1.6	1.7	1.6	1.5	1.5	1.5	1.4
I68102 Otautau	1.2	0.9	0.9	1.0	1.3	1.3	1.4	1.4	1.3	1.4	1.4	1.4
I68133 Winton	1.3	1.0	1.0	1.2	1.5	1.6	1.6	1.6	1.5	1.5	1.5	1.4
I68192 Gore	1.4	1.2	1.3	1.4	1.7	1.8	1.9	1.9	1.7	1.7	1.7	1.6
I68252 Hokonui Forest	1.3	1.0	1.0	1.1	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.4
I68362 Woodlands	1.3	1.0	1.1	1.2	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.3
I68433 Invercargill Airport	1.5	1.2	1.3	1.4	1.7	1.8	1.9	1.8	1.7	1.7	1.6	1.6
I68533 Tiwai Point, Bluff	1.4	1.2	1.2	1.4	1.6	1.8	1.7	1.7	1.7	1.6	1.5	1.5
I69191 Milton	1.2	0.9	0.9	1.1	1.4	1.4	1.5	1.5	1.4	1.4	1.4	1.3
I69273 Finegand, Balclutha	1.2	1.0	1.0	1.2	1.5	1.6	1.7	1.6	1.5	1.5	1.4	1.3
I69464 Owaka	1.3	1.0	1.0	1.0	1.3	1.4	1.4	1.4	1.5	1.4	1.5	1.4
I69481 Nugget Point	1.6	1.3	1.4	1.5	1.8	1.8	1.9	1.8	1.8	1.8	1.7	1.7
I69544 Tautuku	1.2	1.0	1.0	1.1	1.3	1.4	1.4	1.4	1.5	1.4	1.4	1.3