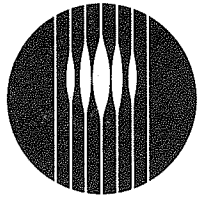


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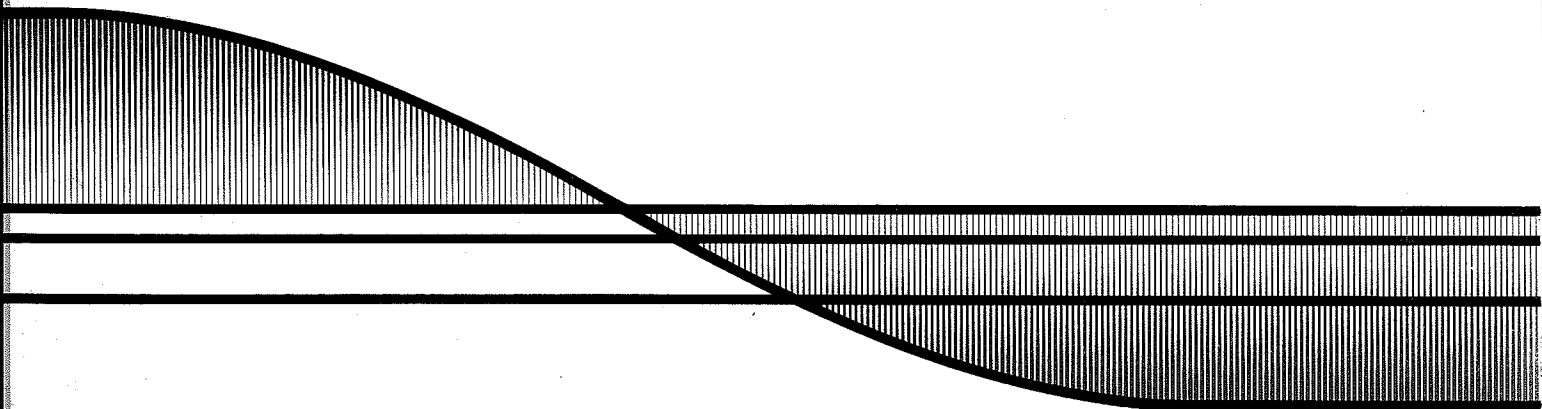
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Solutions

Effect of Forest Thinning on Jarrah (*Eucalyptus marginata*) Water Uptake

Final Report to the
Water Authority of Western Australia

J. K. Marshall and G. W. Chester



Report No. 92/24
August 1992

CS(WR)R 92/24

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FINAL REPORT

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Water Authority of Western Australia

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CONTENTS

Summary	1
Introduction	1
Methods	1
<i>Site Descriptions and Tree Selection</i>	1
<i>Quantifying Water Uptake: Hansens</i>	2
<i>Quantifying Water Uptake: Del Park</i>	2
<i>Meteorological Measurements</i>	3
Results	3
<i>Cumulative Water Uptake</i>	3
<i>Correspondence of Water Uptake</i>	3
<i>Comparing Water Uptake with Meteorological Data</i>	5
Discussion and Conclusions	7
<i>Increased Tree Water Uptake</i>	7
<i>Daily Water Uptake and Meteorological Variables</i>	8
<i>Increased Understorey Water Uptake</i>	8
Acknowledgments	8
References	9
Appendix 1: Details of Trees Used for Quantifying Water Uptake	13
Appendix 2: Correcting Pan Evaporation Data	15
Appendix 3: Daily Water Uptake and Meteorological Measurements	17

TABLES

Table 1. Monthly water uptake of thinned forest, Hansens, and intact forest, Del Park; pan evaporation and rainfall data from Dwellingup; and water uptake / pan evaporation ratio of both catchments. Results from 1 April 1991 to 31 March 1992.....	4
Table 2. Linear regressions of water uptake by Jarrah on Hansens and Del Park catchments against pan evaporation from daily data for 1 April 1991 to 31 March 1992.	6

FIGURES

Figure 1. Location of the thinned catchment, Hansens, and the intact catchment, Del Park, in relation to Perth and Dwellingup	2
Figure 2. Cumulative daily Jarrah water uptake from 1 April 1991 to 31 March 1992. Intact forest, Del Park: $44\text{m}^2\text{ha}^{-1}$, totalled $485 \pm 73\text{mm}$ (upper curve) and thinned forest, Hansens: $7\text{m}^2\text{ha}^{-1}$, totalled $159\text{mm} \pm 45\text{mm}$ (middle curve).	4
Figure 3. Monthly total Jarrah water uptake for Hansens (circles) and Del Park (diamonds) compared with monthly pan evaporation (solid line) and rainfall (dashes) from 1 April 1991 to 31 March 1992	5
Figure 4. Daily water uptake by Jarrah on Hansens (dashes) and Del Park (solid line) catchments from 1 April 1991 to 31 March 1992. The correspondence of daily water uptake peaks and troughs indicates the presence of common external factors controlling water uptake.....	5
Figure 5. Monthly average water uptake ratio of Hansens (dashes) and Del Park (solid line) from 1 April 1991 to 31 March 1992	6
APPENDIX 2: Figure 1. Corrected (lower solid line) and original (dashes) pan evaporation data from Dwellingup Research Station, Dept of CALM compared with rainfall (upper solid line). Incorrectly high evaporation coincided with rainfall. Corrected evaporation was estimated from the relationship of maximum temperature to non-rainy day evaporation.....	15

Summary

Quantifying Jarrah (*Eucalyptus marginata*) tree water uptake in thinned and intact forest showed that tree thinning enhanced water uptake, reducing potential gains in catchment water yield. From 1 April 1991 to 31 March 1992, water uptake in thinned forest was 159 ± 45 mm compared with 485 ± 73 mm in intact forest. Had the result been in proportion to the tree basal area, water uptake after thinning would have been 81mm.

Corresponding fluctuations in daily water uptake at both sites indicated common external controlling factors - summarised as atmospheric evaporative demand. Daily pan evaporation satisfactorily represented atmospheric evaporative demand since it had a strong relationship with daily water uptake for both intact and thinned forest.

The relationship of water uptake to pan evaporation was stronger in wetter months than drier months. This suggested restrictions on water uptake when pan evaporation was high due to drier soil and midday stomatal control. Estimating Jarrah water uptake from pan evaporation using these monthly relationships would therefore provide better estimates of water uptake than those from annual relationships.

Results show that the relatively low increase in catchment water yield was not entirely attributable to enhanced tree water uptake and that non-tree vegetation may also have enhanced water uptake after thinning. Quantifying this would lead to a greater understanding of the partitioning of catchment water loss and the effects of tree thinning.

Introduction

Thinning native forest in south-west Western Australia is an economically attractive strategy for increasing catchment water yield (Schofield *et al.*, 1987). However, the effects of thinning may be short-lived because natural systems often tend to compensate for disturbance by returning to their original level of functioning.

Gains in catchment water yield estimated from the reduction in tree basal area are unlikely to be realised because of:

- more water available for thinned trees without neighbouring trees
- greater interception of radiation on the sides of thinned crowns
- greater evaporative demand on thinned trees because of increased canopy roughness.

This report contains results of measurements on thinned and intact

forest catchments to determine Jarrah tree water uptake (WU) from 1 April 1991 to 31 March 1992. Measurements of daily pan evaporation (PE), rainfall and temperature from the Department of Conservation and Land Management (CALM), Dwellingup are given; and relationships comparing PE with the WU of both catchments were developed for prediction of WU.

Methods

Site Descriptions and Tree Selection

The intact forest catchment, Del Park, is 10 km and thinned forest catchment, Hansens, 20km north-west of Dwellingup. Dwellingup is 85km south, south-east of Perth in the high rainfall zone (>1100 mm yr⁻¹) near the Darling Scarp (Figure 1). The region is predominantly native forest managed for the State by CALM.

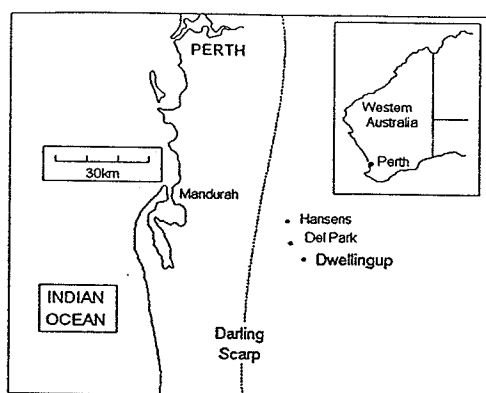


Figure 1. Location of the thinned catchment, Hansens, and the intact catchment, Del Park, in relation to Perth and Dwellingup.

Hansens is an experimental catchment established to examine the effect of thinning native forest to enhance water production. Originally intact forest, thinning in April-May 1986 reduced Jarrah basal area to $7\text{m}^2\text{ha}^{-1}$ (R. Giles, Dept of CALM, pers.comm.). Del Park remained intact with $44\text{m}^2\text{ha}^{-1}$ of Jarrah (J. Ruprecht, WA Water Authority, pers.comm.).

Both sites are first-order catchments; Hansens 79 ha and Del Park 130 ha. The soil of both is similar, supporting stands of 50-60 year regrowth Jarrah with Marri (*E. calophylla*) occasionally co-dominant.

Understorey vegetation, consisting of small tree and shrub species, is typically fairly dense in intact Jarrah forest, including Del Park. Hansens understorey composition is similar to intact forest but its structure is different. There, the small-tree component is largely absent (chemically thinned) while the visually dominant understorey components are eucalypt stump and ground coppice, low shrubs and grass-like herbs. The structural difference is probably due to disturbance from tree thinning.

The six trees selected for WU determination at Hansens represented the range of size classes on the catchment (Marshall and Chester, 1991). Tree selection at Del Park occurred in 1989 when measurement began there (Marshall, 1989).

Quantifying Water Uptake: Hansens

Quantifying Jarrah WU on both catchments involved measuring sap velocity with heat-pulse loggers (DSIR, Soil Conservation Service, Aokautere, New Zealand) using the procedure developed by Marshall (1989). Year-long measurement began at Hansens on 26 March 1991 after characterising the conducting wood area (CWA) of each tree for probe implantation (Appendix 1).

The three heat-pulse loggers available for measurement at Hansens were alternated among the six trees every fortnight. Linear regressions of WU by each tree at Hansens compared with WU monitored continuously at Del Park were used to estimate WU for each of the measurement gaps.

Deriving total WU by all Jarrah on the catchment involved linear regression relating measured WU to tree size. This relationship gave the standard error of WU for each size class, with all values then converted from litres to millimetres using the frequency distribution of tree size for the catchment. Summing the WU and error of all size classes then gave the year-long total for Jarrah on the catchment.

Quantifying Water Uptake: Del Park

Water uptake determination at Del Park began in April 1989. One tree, monitored continuously since that

time, had been used to develop relationships with six other intermittently monitored trees. These relationships have enabled this reference tree to be used to predict daily sap velocities of two broad size classes (<150mm and >150mm diameter) and hence daily WU by Jarrah on the catchment (Marshall, 1989; 1990).

Meteorological Measurements

Corresponding fluctuations in daily WU between trees of different sizes and species had previously been found (Marshall, 1989; Marshall and Chester, 1991). This emphasised the dominance of external controlling factors - summarised as atmospheric evaporative demand (AED). Pan evaporation, rainfall and maximum temperature measurements, from the CALM Research Station, Dwellingup, were compared with daily WU to determine which variable(s) satisfactorily represented AED.

Pan evaporation data from Dwellingup needed correction because of incorrectly high evaporation recorded on rainy days. Determining the relationship between maximum temperature and PE for non-rain days allowed estimates of rainy-day PE (Appendix 2). The corrected PE data set (PE_c), used for all results in this report, contains the original data with estimates replacing about 20% of the total data set.

Results

Because this study was undertaken from a resource management perspective, results initially focus on total WU over the year of study. Interpreting and predicting WU forms an integral part of this perspective, so fluctuations

in daily WU were also compared with meteorological variables to determine the most satisfactory representation of the AED controlling WU.

Cumulative Water Uptake

Cumulative WU by Jarrah from 1 April 1991 to 31 March 1992 was 485 ± 73 mm at Del Park and 159 ± 45 mm at Hansens (Figure 2; Appendix 3). This equates to tree WU at Hansens being one third that at Del Park from a six-fold reduction in Jarrah tree basal area.

The lower most curve on Figure 2 is tree WU one sixth the result at Del Park (equal to 81mm) based on the assumption that WU would decrease in proportion to basal area. The difference between this WU total and that measured at Hansens represents the enhanced WU in response to thinning - 78mm.

The progression of WU over the study period is demonstrated by monthly total results (Table 1; Figure 3). Water uptake reached maximum in summer and minimum in winter - comparable in seasonal pattern to PE_c and opposite the seasonal pattern of rainfall.

Correspondence of Water Uptake

The fluctuating pattern of daily WU at the two sites showed strong correspondence in peaks and troughs (Figure 4). This is reflected in the linear regression comparing WU at Hansens (y) to WU at Del Park (x):

$$y = 0.2744(\pm 0.0041)x + 0.0708(\pm 0.0006) \quad (1)$$

with $r^2 = 0.93$ and $n = 365$. The equation is significant at $p \leq 0.005$ for the F and t-distributions.

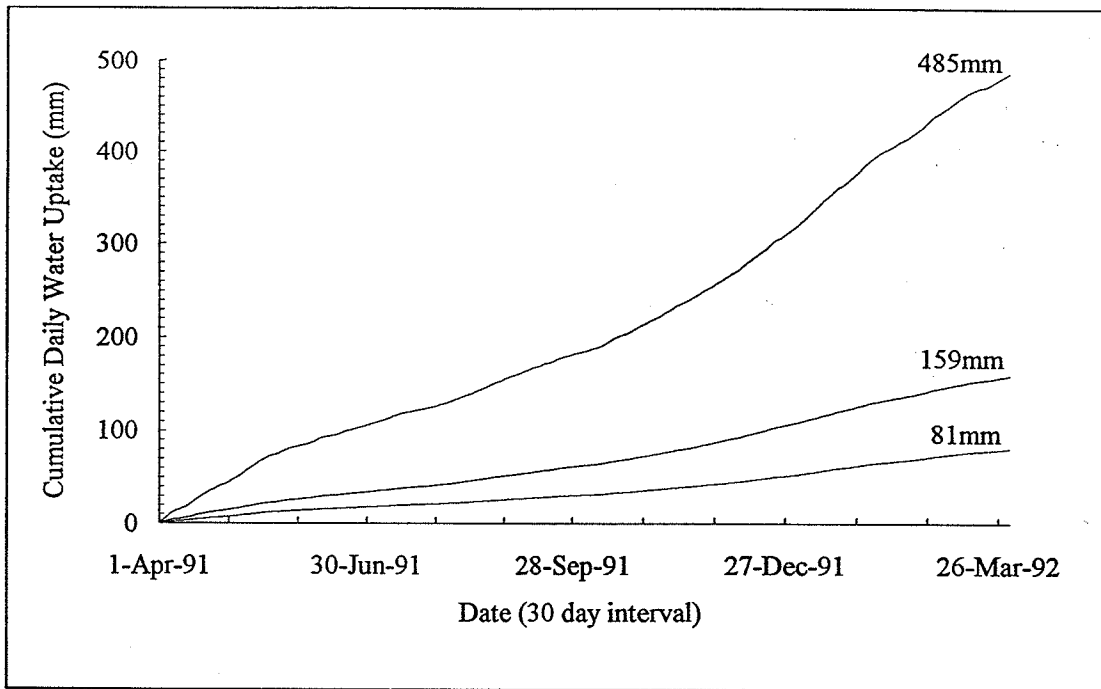


Figure 2. Cumulative daily Jarrah water uptake from 1 April 1991 to 31 March 1992. Intact forest, Jarrah tree basal $44\text{m}^2\text{ha}^{-1}$, totalled $485 \pm 73\text{mm}$ (upper curve) and thinned forest, Jarrah tree basal area $7\text{m}^2\text{ha}^{-1}$, totalled $159\text{mm} \pm 45\text{mm}$ (middle curve). The lowermost curve, totalling 81mm , is water uptake $1/6$ (i.e., $7 \div 44 \text{m}^2\text{ha}^{-1}$) that of the intact forest assuming water uptake would have decreased in proportion to basal area. The difference between the two lower curves represents enhanced water uptake in response to thinning - 78mm .

Month	Pan Evaporation		Rain (mm)	Water Uptake		WU : PE _c ¹	
	Old ² (mm)	New ³ (mm)		Hansens (mm)	Del Park (mm)	Hansens	Del Park
Apr	96.7	103.8	88.2	14.3	43.2	0.14	0.42
May	63.2	65.9	179.4	11.8	40.0	0.22	0.68
Jun	47.2	23.0	277.2	7.6	22.4	0.36	1.01
Jul	59.7	17.9	314.0	7.7	20.8	0.48	1.23
Aug	72.1	38.4	160.8	10.8	30.6	0.30	0.83
Sep	79.2	51.3	155.5	9.8	25.8	0.20	0.51
Oct	115.2	95.0	71.6	11.9	34.4	0.13	0.37
Nov	146.6	111.5	65.4	15.1	43.4	0.14	0.39
Dec	209.1	180.7	27.8	19.3	56.5	0.11	0.32
Jan	231.4	226.8	1.8	20.9	70.3	0.10	0.32
Feb	166.6	161.5	44.5	15.4	51.4	0.10	0.32
Mar	130.7	128.0	56.9	14.3	46.0	0.12	0.36
Total	1418	1204	1443	159	485		

1. Water uptake to pan evaporation ratio averaged from daily ratio.
2. Uncorrected pan evaporation data from Dwellingup Research Centre, Dept of CALM.
3. Corrected pan evaporation data derived from data for non-rain days (see Methods and Appendix 2).

Table 1. Monthly water uptake of thinned forest, Hansens, and intact forest, Del Park; pan evaporation and rainfall data from Dwellingup; and water uptake : pan evaporation ratio of both catchments. Results from 1 April 1991 to 31 March 1992.

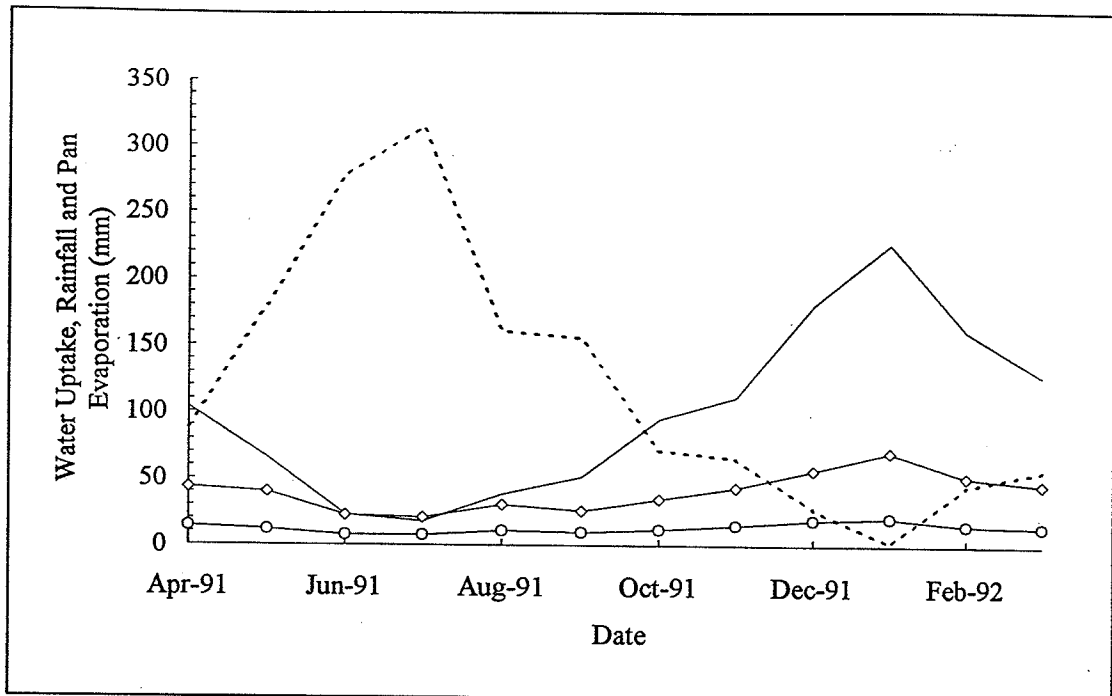


Figure 3. Monthly total Jarrah water uptake for Hansens (circles) and Del Park (diamonds) compared with monthly pan evaporation (solid line) and rainfall (dashes) from 1 April 1991 to 31 March 1992.

This correspondence indicated control of WU by AED. Determining the most suitable meteorological variables to represent AED was necessary to aid interpretation of WU measurements.

Comparing Water Uptake with Meteorological Data

Examining daily WU alongside meteorological records indicated that reductions in WU generally corres-

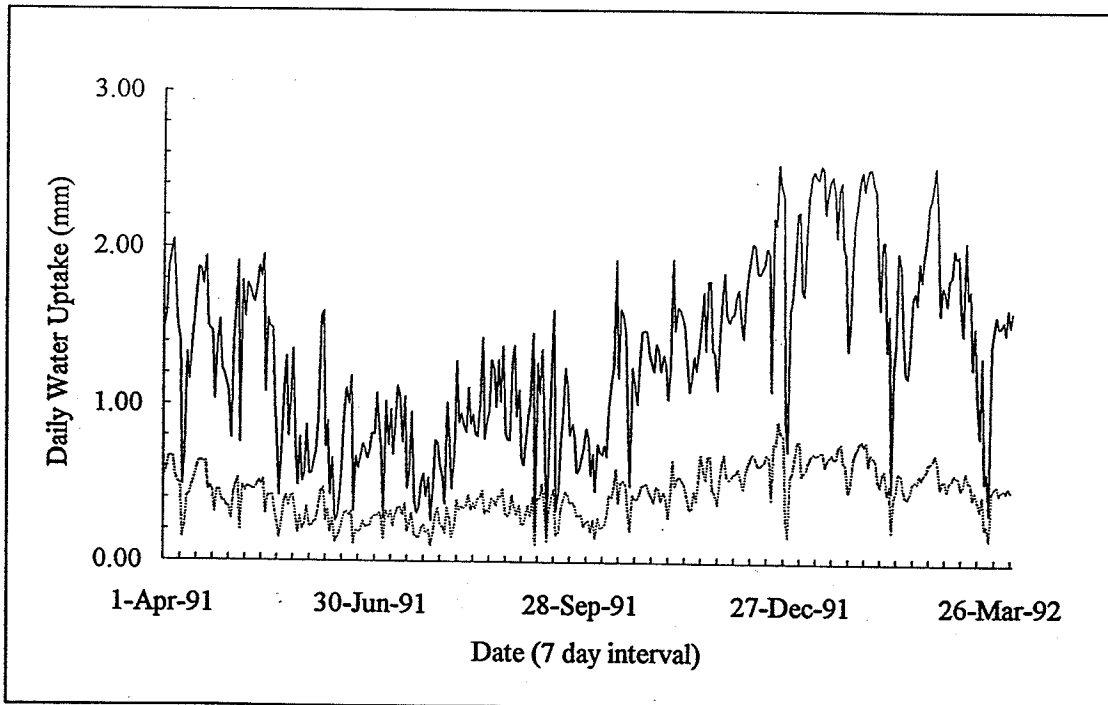


Figure 4. Daily water uptake by Jarrah on Hansens (dashes) and Del Park (solid line) catchments from 1 April 1991 to 31 March 1992. The correspondence of daily water uptake peaks and troughs indicates the presence of common external factors controlling water uptake.

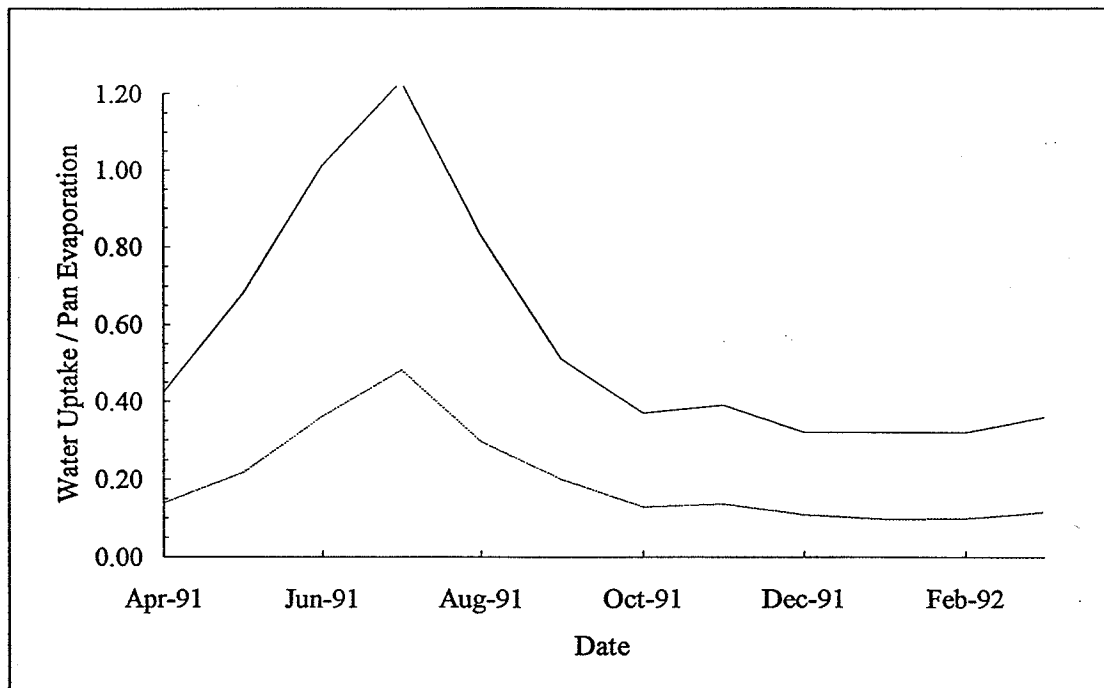


Figure 5. Monthly average water uptake to pan evaporation ratio of Hansens (dashes) and Del Park (solid line) from 1 April 1991 to 31 March 1992.

Month	Del Park				Hansens				
	Pan Evap (mm)	<i>b</i>	<i>r</i> ²	<i>se_y</i>	Pan Evap (mm)	<i>b</i>	<i>r</i> ²	<i>se_y</i>	<i>df</i>
Apr	0.3091 (±0.0340)	0.3711 (±0.1232)	0.75	0.20	0.1118 (±0.0115)	0.0885 (±0.0418)	0.77	0.07	28
May	0.4008 (±0.0363)	0.4372 (±0.0863)	0.81	0.21	0.0877 (±0.0099)	0.1956 (±0.0237)	0.73	0.06	29
Jun	0.8426 (±0.0319)	0.1001 (±0.0271)	0.96	0.06	0.2099 (±0.0120)	0.0937 (±0.0102)	0.92	0.02	28
Jul	0.9494 (±0.0392)	0.1249 (±0.0249)	0.95	0.06	0.2419 (±0.0164)	0.1077 (±0.0105)	0.88	0.02	29
Aug	0.5647 (±0.0447)	0.2884 (±0.0578)	0.85	0.09	0.1383 (±0.0187)	0.1783 (±0.0242)	0.63	0.04	29
Sep	0.4352 (±0.0718)	0.1165 (±0.1300)	0.57	0.23	0.1301 (±0.0181)	0.1025 (±0.0328)	0.65	0.06	28
Oct	0.2928 (±0.0447)	0.2128 (±0.1438)	0.60	0.25	0.0963 (±0.0128)	0.0878 (±0.0410)	0.66	0.07	29
Nov	0.2806 (±0.0359)	0.4052 (±0.1358)	0.69	0.06	0.1314 (±0.0174)	0.0139 (±0.0657)	0.67	0.06	28
Dec	0.2085 (±0.0318)	0.6061 (±0.1911)	0.60	0.26	0.0781 (±0.0123)	0.1675 (±0.0742)	0.58	0.10	29
Jan	0.1518 (±0.0175)	1.1645 (±0.1315)	0.72	0.16	0.0308 (±0.0058)	0.4502 (±0.0439)	0.49	0.05	29
Feb	0.2482 (±0.0231)	0.3919 (±0.1338)	0.82	0.20	0.0542 (±0.0052)	0.2301 (±0.0302)	0.80	0.05	27
Mar	0.3143 (±0.0357)	0.1870 (±0.1531)	0.73	0.22	0.0738 (±0.0081)	0.1577 (±0.0349)	0.74	0.05	29

Table 2. Linear regressions of water uptake by Jarrah on Hansens and Del Park catchments against pan evaporation from daily data for 1 April 1991 to 31 March 1992. *b* is equation constant; *r*² is the coefficient of determination; *se_y* is the standard error of the *y* estimate; and *df* is the number of degrees of freedom of each equation.

ponded with days of rainfall, lower temperatures and lower PE_c (Appendix 3). An example of these conditions occurs in Figure 4 between 16 and 25 March 1992. Days of high WU corresponded with a combination of no

rainfall, higher temperatures and higher pan evaporation.

Relative to rainfall and maximum temperature, PE_c most satisfactorily represented AED because of its strong

relationship with WU. Linear regressions comparing daily PE_c (x) with daily WU (y) reconfirmed this relationship for Hansens:

$$y = 0.0642(\pm 0.0017)x + 0.2219(\pm 0.0067) \quad (2)$$

where $r^2 = 0.79$; $n = 365$; and for Del Park:

$$y = 0.2283(\pm 0.0055)x + 0.5741(\pm 0.0222) \quad (3)$$

where $r^2 = 0.82$; $n = 365$. Both equations are significant at $p \leq 0.005$ for the F and t-distributions.

The ratio of WU to PE_c (WU: PE_c) varied throughout the year. Wetter months had higher values and drier months lower values (Table 1; Figure 5). Ratios in June and July are probably too high because this PE_c is mostly estimated, yet the data satisfactorily represents the seasonal trend - opposite that of PE and WU.

Annual WU to PE_c regression relationships (equation 2 and 3) are appropriate for deriving general annual WU estimates from daily PE values. However, the varying WU: PE_c suggested that better estimates of short-term WU would require a different relationship from daily values of each month (Table 2). The variation in the slope coefficients and coefficients of determination (r^2) throughout the year confirmed this necessity.

Discussion and Conclusions

Streamflow records indicated that forest thinning initially increased catchment water yield from Hansens, but that the increase was small in proportion to the degree of thinning. This

study begins to examine reasons for the water yield shortfall.

Increased Tree Water Uptake

Results show that trees remaining on Hansens after thinning were using more water than trees in intact forest. Mechanisms underlying this may include:

- more water due to reduced competition from neighbouring trees
- increased exposure of the sides of the crowns to radiation
- increased aerodynamic roughness of the thinned canopy.

Greater development of CWA in the trees on Hansens (Appendix 1) indicated increased growth due to greater supply of water. Most of the difference in WU between Hansens and Del Park was accounted for by the differences in supply and the greater CWA.

A small proportion of the enhanced WU at Hansens was due to changed AED effects. This was detected by allowing for CWA differences through expressing results as mean daily sap velocity ($WU \div CWA$).

Sap velocities of comparable trees on Hansens were higher than the reference tree at Del Park, showing that thinning exposed trees to greater AED effects. However, this examination did not indicate which of the last two mechanisms given above had greater affect on WU.

Side radiation was identified as a factor contributing to the higher WU of cloned *E. camaldulensis* trees (Marshall and Bell, 1991). This was detected from diurnal sap velocity curves adjusted to remove scale differ-

ences. No evidence of side radiation effects were found when comparing the sap velocity curves from Hansens and Del Park in this way. This is attributed to Jarrah crowns developing less strongly after thinning compared with *E. camaldulensis*.

Evidence for increased canopy roughness effects was also sought from diurnal sap velocity curves. Trees on Hansens of comparable size to Del Park consistently had higher sap velocities and WU, indicating that increased canopy roughness contributed to enhanced WU.

Daily Water Uptake and Meteorological Variables

The strength of correspondence in daily WU between the two catchments encouraged confidence in comparing WU with several meteorological variables representing AED. Pan evaporation was found to be the most useful representation when data can be relied upon or validly corrected.

Maximum daily temperature was almost as useful as PE_c for general estimates of annual WU. However, its relationship with WU deteriorated markedly for monthly relationships derived from the daily data. Predictions of WU are therefore best made with monthly PE relationships unless daily data appears too inaccurate.

The need for monthly relationships comparing WU with PE_c was first indicated by the changing WU: PE_c . Conditions under which WU: PE_c can be seen to peak at greater than 1:1 (eg., in June and July at Del Park, Table 1) indicate how a single variable, such as PE, is limited in its ability to fully represent AED. The ratios in Table 1 for these months are also

probably too high because daily PE values were mostly estimates. More reliable winter PE data is needed to develop accurate WU:PE ratios and regression relationships for the Jarrah forest.

Increased Understorey Water Uptake

The potential for enhanced WU by the understorey component of the thinned forest appears considerable. After thinning, about 85% of Hansens is understorey and bare ground.

More water is available for the understorey after thinning - both due to less rainfall interception and overall less WU by trees that remain. Thinning increases radiation received by the understorey with a change from dappled shade conditions to near full sunlight. Water vapour transfer to the atmosphere from understorey is also likely to be more efficient because of the increased roughness created by the thinned tree cover.

Preliminary conclusions therefore suggest that understorey WU in thinned forest could be significant to catchment water balance. Quantifying understorey WU would add considerably to our knowledge of partitioning catchment water loss and allow for more effective resource management.

Acknowledgments

The cooperation and assistance of staff from the CALM Research Station and District Office, Dwellingup, is gratefully acknowledged. Besides the District Office recording and providing meteorological data, Dr Stuart Crombie (Officer-in-Charge, Research), Rick Giles, Chris Portlock and Kim Whitford (Senior Research

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APPENDICES



Appendix 1

Details of Trees Used for Quantifying Water Uptake

Parameter	Hansens Trees					Del Park Tree	
	1	2	3	4	5	6	Tree
Diam. Over Bark (cm)	20	24	30	34	39	45	35
Diam. Outer Conducting Wood(cm) ¹	15	21	25	30	34	41	32
Diam. Inner Conducting Wood (cm) ¹	11	17	20	24	28	34	28
Width of Conducting Wood (cm) ¹	2	2	3	3	3	3	2
Area of Conducting Wood (cm ²) ¹	73	143	182	260	304	366	217
Volume Fraction of Water (%)	59	49	54	49	50	53	51
Volume Fraction of Wood (%)	36	42	45	43	41	37	41

1. Conducting wood measurements determined from heat-pulse characterisation.

Appendix 2

Correcting Pan Evaporation Data

Background

Considerable error can arise when measuring pan evaporation (PE) using the technique of the Australian Bureau of Meteorology. Evaporation is measured by daily refilling a pan until the water surface is just below a fixed-height, vertical pointer. Calibrated refilling containers give a measure of the replacement volume and hence daily evaporation. After rainfall, water must be removed from the pan, this amount then being subtracted from recorded rainfall to deduce evaporation.

The technique is made subjective by having to accurately see when the pointer breaks the meniscus on the water surface. Even under ideal condi-

tions it is difficult to measure within the claimed resolution of $\pm 0.2\text{mm}$. Manual observations are also open to inconsistency with changes in observer, varying observation conditions and the reduced rigour that eventually accompanies repetitive tasks. The accuracy of rainfall measurement is also critical to the deduced evaporation on rainy days. (Observer skill is critical to measurement at all times but is not being criticised here because the technique would be difficult to perform consistently for even the most rigorous person.)

Obvious errors in the data from Dwellingup illustrated deficiencies in the measurement method. Incorrectly high evaporation often accompanied

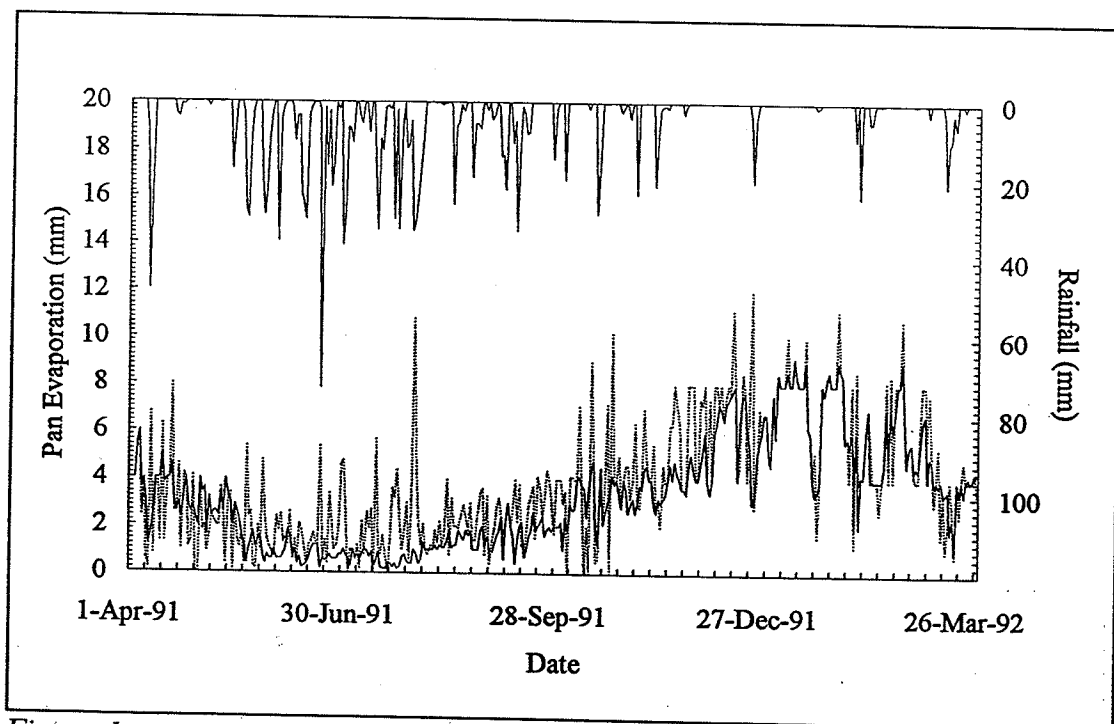


Figure 1. Corrected (lower solid line) and original (dashes) daily pan evaporation data from Dwellingup Research Station, Dept of CALM, compared with daily rainfall (upper solid line). Incorrectly high evaporation measurement coincided with rainfall. Corrected evaporation was estimated from the relationship of maximum temperature to non-rainy day evaporation.

rainfall with around 20% of the data needing correction before daily results appeared realistic (Figure 1). For example, evaporation of 11mm was recorded on a day in winter despite more than 30mm of rainfall. This evaporation level is equates to a mid-summer maximum for this region.

Error in measurements associated with rainfall indicate either a problem with accurately removing rain from the pan or measuring rainfall. Isolated instances of error on non-rain days also indicated the difficulty in maintaining measurement consistency under apparently ideal conditions. In one such case, evaporation decreased more than 80% from one day to the next despite a higher temperature and no other apparent weather difference.

Correction Method

The few instances of suggested error on non-rain days were corrected manually by comparing unusual results with mean evaporation for all non-rain days of equal temperature. Any less than or greater than the mean were looked at more closely to see whether other variables indicated unusual weather conditions for that day. Firstly eliminating these errors avoided invalidating the subsequent corrections to rainy-day data.

Correcting rainy-day data involved determining the most suitable meteorological variable from which to develop evaporation estimates. Daily maximum temperature proved to be the most reliable measurement for this purpose since it had a strong relationship with non-rain evaporation. This relationship is described by the linear regression of daily PE (y) against

maximum temperature on non-rain days (x):

$$y = 0.3154(\pm 0.1242)x - 3.4298(\pm 0.3227) \quad (1)$$

where $r^2 = 0.76$; standard error of y estimate is 1.06; and $n = 205$. The equation is significant at $p \leq 0.005$ for the F and t-distributions.

Estimates of PE on rainy days derived from equation 1 were plotted and manually checked against daily weather conditions to ensure there were no gross inconsistencies. The estimates proved acceptable and were used as computed for comparison with WU - the corrected PE data set designated PE_c.

APPENDIX 3

Daily Water Uptake and Meteorological Measurements

HANSENS

DEL PARK

	TREE						CATCHMENT				Cum					PAN Old* (mm)	EVAP. New** (mm)	RAIN (mm)	TEMP Max (°C)	
	1 (lrs)	2 (lrs)	3 (lrs)	4 (lrs)	5 (lrs)	6 (lrs)	Total (lrs)	Cum (lrs)	Total (mm)	Cum (mm)	Total (lrs)	Cum (lrs)	Total (mm)	Cum (mm)	1/6 (mm)					1/6 (mm)
1-Apr-91	14.70	18.21	79.68	60.22	67.22	79.20	319	319	0.5	0.5	30.33	30	1.48	1	0.25	0.25	4.0	4.0	0.0	25.5
2-Apr-91	16.07	19.26	88.60	64.94	72.10	86.08	347	666	0.6	1	32.20	63	1.57	3	0.26	1	4.0	4.0	0.0	28.6
3-Apr-91	18.37	20.98	102.40	74.00	80.61	100.30	397	1063	0.7	2	38.56	101	1.88	5	0.31	1	4.0	4.0	0.0	32.2
4-Apr-91	18.33	21.11	102.55	75.13	80.80	100.83	399	1462	0.7	2	40.32	141	1.97	7	0.33	1	5.4	5.4	0.0	33.2
5-Apr-91	18.09	20.72	101.75	74.86	80.19	100.32	396	1858	0.7	3	42.00	183	2.05	9	0.34	1	6.0	6.0	0.0	32.9
6-Apr-91	14.45	18.93	80.79	62.82	65.77	81.04	324	2181	0.5	4	36.27	220	1.77	11	0.29	2	2.4	3.6	0.0	28.0
7-Apr-91	14.05	17.69	74.11	57.40	60.85	73.81	298	2479	0.5	4	30.91	251	1.51	12	0.25	2	4.0	4.0	0.0	26.8
8-Apr-91	14.09	17.52	74.26	56.22	59.98	72.11	294	2774	0.5	5	28.76	279	1.40	14	0.23	2	0.6	3.0	7.4	25.5
9-Apr-91	4.71	9.66	15.21	16.81	19.71	24.48	91	2864	0.2	5	9.84	289	0.48	14	0.08	2	0.2	1.2	47.8	14.2
10-Apr-91	5.50	12.06	23.30	27.53	23.73	38.53	131	2995	0.2	5	14.10	303	0.69	15	0.11	2	6.8	1.6	23.4	13.1
11-Apr-91	9.36	16.79	53.90	51.09	41.42	68.56	241	3236	0.4	5	27.30	331	1.33	16	0.22	3	0.8	2.6	0.2	18.3
12-Apr-91	12.53	15.61	65.58	45.44	52.96	60.86	253	3489	0.4	6	23.73	354	1.16	17	0.19	3	4.0	4.0	0.0	19.4
13-Apr-91	14.33	17.20	73.21	53.02	62.11	71.18	291	3780	0.5	6	28.52	383	1.72	22	0.29	4	6.3	5.0	0.0	26.3
16-Apr-91	18.34	20.45	100.16	68.58	78.52	92.36	378	4826	0.6	8	38.35	488	1.87	24	0.31	4	1.3	3.8	0.0	29.8
17-Apr-91	19.20	20.37	103.22	68.17	79.02	91.81	382	5208	0.6	9	38.10	526	1.86	26	0.31	4	4.0	4.0	0.0	30.2
18-Apr-91	19.35	19.74	104.50	65.18	81.29	87.73	378	5586	0.6	9	36.20	563	1.77	27	0.29	5	4.0	4.0	0.0	30.9
19-Apr-91	18.24	20.93	97.44	70.85	76.12	95.45	379	5965	0.6	10	39.79	602	1.94	29	0.32	5	8.0	4.6	0.0	25.6
20-Apr-91	11.77	17.94	57.71	56.58	48.96	76.02	269	6234	0.5	10	30.77	633	1.50	31	0.25	5	2.6	3.0	3.2	22.9
21-Apr-91	13.86	17.79	66.02	55.84	54.99	75.02	284	6517	0.5	11	30.30	663	1.48	32	0.25	5	2.6	2.6	4.0	27.6
22-Apr-91	11.26	17.72	54.99	55.54	48.10	74.62	262	6779	0.4	11	30.11	694	1.47	34	0.24	6	4.6	3.0	0.6	20.3
23-Apr-91	6.85	14.78	32.06	41.46	30.02	55.44	181	6960	0.3	12	21.21	715	1.03	35	0.17	6	1.0	2.4	0.9	20.2
24-Apr-91	12.47	17.03	62.33	52.21	52.88	70.07	267	7227	0.4	12	28.00	743	1.37	36	0.23	6	4.2	3.4	0.2	19.3
25-Apr-91	14.46	16.02	60.67	51.23	62.05	68.23	273	7500	0.4	13	31.63	774	1.54	38	0.26	6	4.0	4.0	0.0	21.5
26-Apr-91	11.54	15.97	45.01	47.46	49.38	59.50	229	7728	0.4	13	25.13	800	1.23	39	0.20	7	1.1	2.8	0.1	18.5
27-Apr-91	11.31	15.74	43.81	48.20	48.41	61.20	229	7957	0.4	13	24.63	824	1.20	40	0.20	7	1.3	2.6	0.1	20.6
28-Apr-91	10.79	14.27	40.99	45.09	46.12	54.56	212	8169	0.4	14	23.46	848	1.14	41	0.19	7	4.1	2.8	0.1	21.5
29-Apr-91	10.22	15.07	37.95	46.76	43.67	55.34	209	8378	0.3	14	22.20	870	1.08	42	0.18	7	0.1	2.4	0.1	19.8
30-Apr-91	7.35	13.47	22.57	38.34	31.22	44.60	158	8536	0.3	14	16.05	886	0.78	43	0.13	7	0.0	2.0	0.0	19.4
1-May-91	13.15	16.60	53.66	53.92	56.38	69.79	264	8799	0.4	15	28.72	915	1.40	45	0.23	7	4.0	4.0	0.0	20.0
2-May-91	15.14	17.21	64.32	57.19	65.00	75.34	294	9093	0.5	16	39.19	987	1.91	48	0.32	8	2.0	3.6	0.1	26.6
4-May-91	6.88	10.28	20.03	24.35	29.17	30.04	121	9535	0.2	16	15.49	1002	0.76	49	0.13	8	0.9	1.6	1.3	20.2
5-May-91	16.70	15.98	72.72	50.40	71.80	63.71	291	9827	0.4	17	31.89	1071	1.56	52	0.26	9	2.4	2.4	0.0	18.3
7-May-91	16.56	15.81	71.96	49.67	71.18	63.87	289	10385	0.5	17	36.32	1107	1.77	54	0.30	9	2.2	2.6	0.0	19.5
8-May-91	16.24	15.52	70.23	48.91	69.78	63.54	284	10669	0.5	18	35.60	1143	1.65	59	0.28	10	3.6	3.4	0.0	19.6
11-May-91	12.34	19.48	69.74	53.96	53.28	69.23	278	11489	0.5	19	35.40	1247	1.73	61	0.29	10	2.6	2.6	0.0	20.2
12-May-91	14.31	20.51	77.28	56.71	61.88	73.22	304	11793	0.5	20	38.53	1285	1.55	69	0.26	12	2.9	2.9	0.1	19.2
17-May-91	10.74	17.90	58.29	49.77	43.48	63.16	243	13045	0.4	22	30.64	1447	1.49	71	0.25	12	1.4	2.6	0.1	17.9
18-May-91	11.37	17.87	58.04	49.68	52.68	63.03	253	13297	0.4	22	30.54	1478	0.77	74	0.13	12	0.4	1.2	27.2	18.9
21-May-91	5.01	8.26	11.80	24.17	7.98	26.01	83	13709	0.1	23	8.46	1522	0.41	74	0.07	12	5.4	0.4	29.4	16.8
22-May-91	7.60	12.88	21.79	36.45	35.24	43.82	158	13867	0.3	23	15.88	1538	1.31	77	0.22	13	0.3	1.8	0.1	16.1
25-May-91	7.63	16.24	42.00	49.86	32.42	58.21	206	14546	0.4	24	16.38	1604	0.80	78	0.13	13	0.2	1.1	0.0	16.4
26-May-91	9.76	17.54	49.04	56.67	41.68	67.41	242	14788	0.4	25	21.18	1625	1.03	79	0.17	13	2.0	1.4	0.0	18.3
27-May-91	12.74	16.75	58.87	52.52	54.60	56.30	252	15040	0.4	25	27.81	1653	1.36	81	0.23	13	1.0	1.6	19.6	18.1
28-May-91	6.42	12.96	37.98	32.72	27.15	48.37	166	15205	0.3	25	14.94	1668	0.73	81	0.12	14	4.8	0.8	28.8	14.2
29-May-91	2.15	10.49	23.87	19.77	8.62	34.81	100	15305	0.2	26	9.88	1678	0.48	82	0.08	14	2.4	0.4	22.0	15.0
30-May-91	7.53	12.61	41.66	30.88	31.98	43.26	168	15473	0.3	26	16.26	1694	0.79	83	0.13	14	1.4	0.8	9.4	16.6
31-May-91	2.55	11.70	25.22	26.13	10.38	39.55	116	15588	0.2	26	10.37	1705	0.51	83	0.08	14	1.1	0.6	3.2	16.3
1-Jun-91	3.42	12.64	28.09	31.03	14.16	41.85	131	15720	0.2	26	11.40	1716	0.56	84	0.09	14	0.9	0.6	0.2	15.5
2-Jun-91	8.30	15.58	44.21	46.41	35.33	52.58	202	15922	0.3	27	17.92	1734	0.87	85	0.15	14	0.7	1.0	0.1	17.7
3-Jun-91	3.45	12.62	28.16	30.91	14.25	35.68	125	16047	0.2	27	11.42	1746	0.56	85	0.09	14	2.4	0.6	35.6	15.9
4-Jun-91	3.49	12.26	28.30	29.02	14.43	41.64	129	16176	0.2	27	11.47	1757	0.56	86	0.09	14	1.8	0.6	4.2	17.5
5-Jun-91	4.80	12.79	32.65	31.80	20.15	42.78	145	16321	0.3	27	13.03	1770	0.64	86	0.11	14	2.5	0.6	1.2	15.9
6-Jun-91	5.92	12.23	36.34	28.87	25.00	40.81	149	16470	0.3	28	14.36	1784	0.70	87	0.12	15	1.3	0.8	0.2	17.3
7-Jun-91	10.77	13.85	42.74	39.02	59.73	47.56	214	16684	0.3	28	18.42	1803	0.90	88	0.15	15	1.5	1.0	0.1	18.6
8-Jun-91	11.54	18.40	65.25	51.11	58.14	65.10	270	16954	0.4	28	32.16	1835	1.57	90	0.26	15	1.2	1.8	0.0	16.7
9-Jun-91	12.76	18.60	72.08	51.63	59.22	65.85	280	17234	0.5	29	32.75	1868	1.60	91	0.27	15	2.6	1.6	1.0	19.2
10-Jun-91	5.64	12.32	26.71	34.95	35.50	41.65	157	17391	0.3	29	14.98	1883	0.73	92	0.12	15	0.6	0.8	9.8	16.3
11-Jun-91	8.54	13.86	43.34	39.04	42.33	47.58	195	17585	0.3	29	18.43	1901	0.90	93	0.15	15	1.4	1.0	3.4	15.8
12-Jun-91	5.78	8.37	21.60	24.47	26.90	26.44	114	17699	0.2	30	8.64	1910	0.42	93	0.07	16	0.5	0.4	3.4	16.3
13-Jun-91	7.85	11.41	37.13	32.53	36.22	38.13	163	17862	0.3	30	13.51	1923	0.66	94	0.11	16	2.1	0.7	23.5	16.4
14-Jun-91	3.99	6.23	8.07	18.78	20.90	18.18	76	17938	0.1	30	5.19	1928	0.25	94	0.04	16	1.8	0.2	25.8	12.3
15-Jun-91	4.98	6.60	17.92	19.76	23.86	19.61	93	18031	0.2	30	5.79	1934	0.28	94	0.05	16	1.2	0.3	29.8	14.5
16-Jun-91</																				

	HANSENS						DEL PARK						Cum 1/6 (mm)	PAN Old* (mm)	EVAP. New** (mm)	RAIN (mm)	TEMP Max (°C)			
	TREE		CATCHMENT				Total		Cum		1/6									
	1 (ltrs)	2 (ltrs)	3 (ltrs)	4 (ltrs)	5 (ltrs)	6 (ltrs)	Total (ltrs)	Cum (ltrs)	Total (mm)	Cum (mm)	Total (ltrs)	Cum (ltrs)	Total (mm)	Cum (mm)	1/6 (mm)					
2-Jul-91	10.18	13.88	50.42	21.21	49.04	33.33	178	20555	0.3	34	22.11	2202	1.08	107	0.18	18	4.8	1.0	28.8	17.5
3-Jul-91	9.24	13.59	36.75	38.34	39.42	46.57	184	20739	0.3	35	17.64	2219	0.86	108	0.14	18	2.4	0.8	6.4	12.4
4-Jul-91	7.60	12.00	32.47	34.09	35.94	40.41	163	20902	0.3	35	14.46	2234	0.71	109	0.12	18	0.0	0.6	6.8	14.2
5-Jul-91	4.42	12.43	31.79	35.25	35.38	42.09	165	21347	0.3	36	15.16	2276	0.74	111	0.12	19	0.6	0.7	0.2	10.5
8-Jul-91	8.71	14.37	39.33	40.39	41.52	49.55	194	21541	0.3	36	19.98	2296	0.97	112	0.16	19	1.2	0.8	3.6	14.6
9-Jul-91	4.46	15.39	38.55	43.10	40.88	53.47	200	22050	0.3	37	23.05	2351	1.12	115	0.19	19	0.8	1.0	0.1	17.7
12-Jul-91	9.33	15.00	44.03	42.08	45.34	52.00	208	22258	0.3	37	21.89	2373	1.07	116	0.18	19	2.6	1.0	7.6	17.7
13-Jul-91	8.75	8.93	21.68	25.95	27.15	28.58	117	22776	0.2	38	9.53	2419	0.46	118	0.08	20	0.0	0.3	17.6	15.3
16-Jul-91	5.18	10.31	30.16	29.61	34.05	33.90	143	22919	0.2	38	11.75	2431	0.57	119	0.10	20	5.7	0.5	32.6	12.7
17-Jul-91	6.13	14.25	35.39	40.08	38.31	49.10	183	23103	0.3	39	19.63	2451	0.96	120	0.16	20	1.2	0.9	9.2	12.2
18-Jul-91	2.38	8.23	18.04	17.87	25.91	29.71	102	23205	0.2	39	7.79	2458	0.38	120	0.06	20	0.8	0.3	12.2	11.9
19-Jul-91	1.90	8.29	13.82	18.04	22.89	31.01	96	23301	0.2	39	6.28	2465	0.31	120	0.05	20	1.6	0.2	1.4	11.0
20-Jul-91	1.19	7.04	16.16	16.97	24.57	29.41	95	23396	0.2	39	7.12	2472	0.35	121	0.06	20	0.7	0.2	0.9	13.1
21-Jul-91	2.52	9.22	25.10	22.78	30.95	38.40	129	23525	0.2	39	10.32	2482	0.50	121	0.08	20	0.0	0.4	1.8	16.0
22-Jul-91	3.48	9.35	28.28	25.27	33.23	42.03	142	23667	0.2	39	11.47	2494	0.56	122	0.09	20	1.4	0.4	0.2	16.2
23-Jul-91	1.88	8.17	19.70	20.28	27.09	34.59	112	23778	0.2	40	8.39	2502	0.41	122	0.07	20	3.6	0.3	29.8	15.2
24-Jul-91	3.03	8.87	26.80	20.09	32.17	32.60	124	23902	0.2	40	10.93	2513	0.53	123	0.09	20	3.2	0.4	2.0	15.3
25-Jul-91	1.74	6.05	11.03	7.12	20.90	17.88	65	23967	0.1	40	5.28	2518	0.26	123	0.04	20	4.4	0.2	32.4	14.6
26-Jul-91	1.98	8.71	23.32	16.94	29.68	28.84	109	24076	0.2	40	9.69	2528	0.47	123	0.08	21	2.0	0.3	6.4	13.6
27-Jul-91	7.23	11.20	40.67	32.06	42.07	43.82	177	24253	0.3	40	15.91	2544	0.78	124	0.13	21	1.0	0.7	0.4	15.9
28-Jul-91	6.92	13.85	39.64	44.33	41.34	57.20	203	24456	0.3	41	15.54	2559	0.76	125	0.13	21	1.8	0.8	11.6	18.0
29-Jul-91	4.42	11.50	31.39	25.61	35.44	39.24	148	24604	0.2	41	12.58	2572	0.61	125	0.10	21	3.0	0.5	11.0	14.9
30-Jul-91	7.28	9.93	30.54	24.78	29.08	32.44	134	24738	0.2	41	11.14	2583	0.54	126	0.09	21	0.6	0.4	4.6	15.4
31-Jul-91	6.75	7.62	27.22	15.79	27.36	23.54	108	24846	0.2	41	7.43	2590	0.36	126	0.06	21	2.7	0.4	32.8	15.8
1-Aug-91	9.59	14.67	44.99	43.24	42.72	50.72	206	25052	0.3	42	20.89	2611	1.02	127	0.17	21	10.8	1.0	30.8	15.2
2-Aug-91	7.29	12.89	30.60	36.31	33.16	43.86	164	25216	0.3	42	15.90	2627	0.78	128	0.13	21	4.2	0.8	22.8	12.5
3-Aug-91	4.16	8.87	10.99	20.67	18.93	28.37	92	25308	0.2	42	9.44	2637	0.46	129	0.08	21	2.0	0.4	16.0	14.0
4-Aug-91	5.83	11.78	21.45	31.97	26.92	39.56	138	25446	0.2	42	14.11	2651	0.69	129	0.11	22	1.2	0.6	9.2	13.5
5-Aug-91	10.57	16.49	51.14	50.33	45.00	57.74	231	25677	0.4	43	26.39	2677	1.29	131	0.21	22	2.1	1.3	0.1	13.0
6-Aug-91	9.51	13.78	44.52	39.77	40.85	47.28	196	25873	0.3	43	18.20	2695	0.89	131	0.15	22	1.0	1.0	0.2	14.5
7-Aug-91	10.29	14.20	49.36	41.39	43.42	48.89	208	26080	0.3	43	19.46	2715	0.95	132	0.16	22	0.8	1.0	0.0	14.9
8-Aug-91	10.20	13.73	48.79	39.59	43.69	47.10	203	26284	0.3	44	18.06	2733	0.88	133	0.15	22	1.2	1.0	0.0	14.3
9-Aug-91	11.36	13.53	56.06	38.78	46.78	46.31	213	26496	0.4	44	16.92	2750	0.83	134	0.14	22	1.0	1.0	0.2	18.5
10-Aug-91	13.61	15.32	70.15	45.77	57.74	53.23	256	26752	0.4	45	22.86	2773	1.12	135	0.19	23	1.8	1.2	0.2	21.1
11-Aug-91	9.74	13.73	45.95	39.55	40.46	47.07	196	26949	0.3	45	18.04	2791	0.88	136	0.15	23	1.3	1.0	0.1	17.2
12-Aug-91	11.66	14.15	57.92	41.21	48.78	48.72	222	27171	0.4	45	16.83	2810	0.94	137	0.16	23	2.2	1.2	0.8	15.0
13-Aug-91	10.31	13.47	49.50	38.57	44.02	46.09	202	27373	0.3	46	16.83	2827	0.82	138	0.14	23	1.2	1.1	0.2	16.5
14-Aug-91	7.65	17.71	42.06	57.54	43.07	66.56	235	27608	0.4	46	16.41	2843	0.80	139	0.13	23	1.6	1.1	0.2	18.0
15-Aug-91	9.70	17.01	48.83	53.90	47.90	67.57	245	27853	0.4	46	21.04	2864	1.03	140	0.17	23	4.0	1.4	0.0	20.6
16-Aug-91	13.46	17.03	61.27	53.99	56.79	68.38	271	28123	0.5	47	29.42	2894	1.44	141	0.24	24	0.8	1.8	0.8	19.8
17-Aug-91	7.36	13.57	41.11	35.87	42.39	43.62	184	28307	0.3	47	16.07	2910	0.78	142	0.13	24	3.2	1.1	26.0	17.8
18-Aug-91	8.54	13.92	45.01	37.73	45.17	48.14	199	28506	0.3	48	18.46	2928	0.90	143	0.15	24	2.0	1.2	6.0	14.5
19-Aug-91	9.03	13.02	46.62	32.99	46.32	42.14	190	28696	0.3	48	19.55	2948	0.95	144	0.16	24	2.0	1.2	5.2	15.8
20-Aug-91	12.14	15.54	56.90	46.19	53.67	58.25	243	28939	0.4	48	26.48	2974	1.29	145	0.22	24	1.9	1.8	0.5	16.0
21-Aug-91	11.55	15.39	54.93	45.39	52.26	54.80	234	29173	0.4	49	25.15	2999	1.23	146	0.20	24	2.5	1.6	2.2	16.5
22-Aug-91	9.33	14.95	47.61	43.12	47.03	52.50	215	29388	0.4	49	20.21	3020	0.99	147	0.16	25	2.9	1.4	0.3	15.4
23-Aug-91	12.17	16.12	56.99	49.25	53.74	62.70	251	29639	0.4	49	26.54	3046	1.29	149	0.22	25	2.4	1.8	0.1	15.1
24-Aug-91	9.68	17.14	48.75	54.57	47.85	68.18	246	29885	0.4	50	20.99	3067	1.02	150	0.17	25	1.8	1.6	0.1	17.1
25-Aug-91	12.96	17.92	59.60	58.66	55.60	71.48	276	30161	0.5	50	28.30	3096	1.38	151	0.23	25	3.0	1.8	19.0	20.5
26-Aug-91	8.06	13.16	43.42	33.74	44.04	42.43	185	30346	0.3	51	16.89	3112	0.82	152	0.14	25	1.4	1.0	5.4	16.0
27-Aug-91	7.29	12.81	40.87	31.90	42.22	39.42	174	30520	0.3	51	15.98	3128	0.78	153	0.13	25	1.4	1.0	5.4	13.2
28-Aug-91	7.27	13.95	40.80	37.90	42.17	44.97	187	30707	0.3	51	15.95	3144	0.78	153	0.13	25	2.6	1.0	6.6	14.9
29-Aug-91	12.01	16.43	56.47	50.84	53.36	65.05	254	30962	0.4	52	26.19	3171	1.28	155	0.21	26	3.4	1.8	0.2	13.9
30-Aug-91	8.02	16.06	41.15	48.91	36.87	55.56	207	31168	0.3	52	28.40	3199	1.39	156	0.23	26	3.6	2.0	0.2	16.4
31-Aug-91	7.11	14.52	33.78	40.86	32.09	48.36	177	31345	0.3	52	19.05	3218	0.93	157	0.15	26	0.8	1.2	2.0	15.5
1-Sep-91	9.64	15.38	49.34	45.36	41.39	52.82	214	31559	0.4	53	22.54	3241	1.10	158	0.18	26	3.3	1.6	0.1	14.3
2-Sep-91	6.33	12.65	26.34	31.09	25.15	38.69	140	31699	0.2	53	13.74	3254	0.67	159	0.11	26	0.4	1.0	4.4	13.4
3-Sep-91	7.19	12.14	29.43	28.39	28.30	36.01	141	31840	0.2	53	12.63	3267	0.62	159	0.10	27	1.4	0.9	3.0	16.7
4-Sep-91	8.53	13.56	41.20	35.86	36.09	43.41	179	32019	0.3	53	15.71	3283	0.77	160	0.13	27	1.9	1.3	0.1	17.9
5-Sep-91	10.25	14.51	55.37	40.80	47.23	48.31	216	32236	0.4	54	19.00	3302	0.93	161	0.15	27	2.8	1.6	1.0	19.2
6-Sep-91	7.56	14.97	23.91	43.19	35.20	50.67	175	32411	0.3	54	20.86	3322	1.02	162	0.17	27	3.2	1.8	13.8	16.4
7-Sep-91	9.44	17.22	54.87	54.98	44.84	62.35	244	32655	0.4	54	30.01	3352								

Daily Water Uptake and Meteorological Measurements

HANSENS

DEL PARK

	TREE						CATCHMENT				DEL PARK					PAN Old* (mm)	EVAP. New** (mm)	RAIN (mm)	TEMP Max (°C)	
	1 (lts)	2 (lts)	3 (lts)	4 (lts)	5 (lts)	6 (lts)	Total (lts)	Cum (lts)	Total (mm)	Cum (mm)	Total (lts)	Cum (lts)	Total (mm)	Cum (mm)	1/6 (mm)					Cum 1/6 (mm)
30-Sep-91	8.16	14.17	14.81	39.01	33.45	46.53	156	37170	0.3	62	17.61	3748	0.86	183	0.14	30				
1-Oct-91	7.56	13.83	23.22	37.27	31.15	44.81	158	37328	0.3	62	16.29	3764	0.79	184	0.13	31	1.7	2.0	1.4	14.9
2-Oct-91	3.37	11.53	15.93	25.24	29.21	32.89	118	37446	0.2	62	11.33	3775	0.55	184	0.09	31	4.0	2.0	0.0	16.0
3-Oct-91	5.83	12.89	41.02	32.31	25.86	39.90	158	37604	0.3	63	14.25	3790	0.69	185	0.12	31	4.0	2.0	0.0	18.4
4-Oct-91	1.58	10.56	13.52	20.12	19.21	27.82	93	37697	0.2	63	9.21	3799	0.45	185	0.07	31	4.0	2.2	0.0	20.3
5-Oct-91	6.90	13.47	38.60	35.37	26.33	42.93	164	37860	0.3	63	15.51	3814	0.76	186	0.13	31	3.0	1.0	19.6	17.9
6-Oct-91	5.94	12.95	15.20	32.63	24.56	40.22	131	37992	0.2	63	14.38	3829	0.70	187	0.12	31	3.5	2.4	0.1	16.4
7-Oct-91	5.68	12.80	17.41	31.89	28.05	39.48	135	38127	0.2	64	14.07	3843	0.69	187	0.11	31	0.0	1.8	0.1	15.7
8-Oct-91	6.82	13.43	16.17	35.15	28.84	42.71	143	38270	0.2	64	15.42	3858	0.75	188	0.11	31	4.1	2.9	0.1	20.2
9-Oct-91	5.47	12.69	51.51	31.27	28.44	38.87	168	38438	0.3	64	13.82	3872	0.67	189	0.11	31	4.1	2.7	0.1	23.5
10-Oct-91	9.44	22.61	47.96	42.67	47.28	83.22	253	38692	0.4	65	20.45	3892	1.00	190	0.17	32	4.0	2.8	0.0	29.1
11-Oct-91	10.97	15.72	53.02	47.07	50.90	70.62	248	38940	0.4	65	23.87	3916	1.16	191	0.19	32	7.0	4.0	0.0	28.6
12-Oct-91	11.92	17.59	56.17	49.80	53.15	96.03	285	39225	0.5	65	25.99	3942	1.27	192	0.21	32	4.1	4.1	0.1	24.3
13-Oct-91	18.02	20.79	76.33	67.32	67.55	105.71	356	39580	0.6	66	39.58	3982	1.93	194	0.32	32	3.8	3.8	0.0	30.6
14-Oct-91	11.11	12.58	53.50	47.48	51.24	52.89	229	39809	0.4	66	24.19	4006	1.18	195	0.20	33	0.0	3.6	0.0	28.0
15-Oct-91	15.17	17.93	66.91	59.13	60.82	83.96	304	40113	0.5	67	33.23	4039	1.62	197	0.27	33	2.0	2.4	1.6	21.5
16-Oct-91	14.91	19.08	66.03	58.37	60.19	92.35	311	40424	0.5	67	32.64	4072	1.59	199	0.27	33	0.0	3.6	0.0	19.0
17-Oct-91	13.72	18.27	62.10	54.95	57.38	90.24	297	40721	0.5	68	29.99	4102	1.46	200	0.24	33	9.0	4.4	0.0	22.2
18-Oct-91	8.80	11.50	45.85	40.83	45.77	50.27	203	40924	0.3	68	19.03	4121	0.93	201	0.15	34	5.2	4.8	0.0	25.1
19-Oct-91	2.22	11.37	24.12	21.95	30.25	31.03	121	41045	0.2	68	9.97	4131	0.49	202	0.08	34	0.5	2.0	28.5	19.6
20-Oct-91	11.73	16.72	55.52	49.24	52.68	72.35	258	41303	0.4	69	25.55	4156	1.25	203	0.21	34	0.6	1.2	16.6	16.5
21-Oct-91	10.61	15.19	51.82	46.02	50.04	68.95	243	41545	0.4	69	23.06	4180	1.12	204	0.19	34	4.5	4.5	0.2	15.5
22-Oct-91	9.56	16.39	48.37	43.02	47.57	79.25	244	41790	0.4	70	20.73	4200	1.01	205	0.17	34	2.1	2.1	0.1	19.0
23-Oct-91	12.14	16.81	56.88	50.42	53.66	76.64	267	42056	0.4	70	26.47	4227	1.29	206	0.22	34	4.1	2.6	0.1	24.7
24-Oct-91	13.87	18.32	62.60	55.39	57.74	85.09	293	42349	0.5	71	30.33	4257	1.48	208	0.25	35	7.2	3.0	0.0	21.4
25-Oct-91	13.89	18.24	62.67	55.45	57.79	88.66	297	42646	0.5	71	30.37	4287	1.48	209	0.25	35	0.0	3.3	0.0	22.0
26-Oct-91	13.89	19.07	62.67	55.45	57.79	91.60	300	42946	0.5	72	30.37	4318	1.48	211	0.25	35	10.2	4.2	0.0	25.1
27-Oct-91	12.58	16.59	71.68	51.68	55.92	59.08	268	43214	0.4	72	27.45	4345	1.34	212	0.22	35	3.8	3.8	0.0	26.9
28-Oct-91	11.96	16.25	63.69	49.91	48.70	57.33	248	43462	0.4	73	26.08	4371	1.27	213	0.21	36	4.0	4.0	0.0	25.7
29-Oct-91	11.49	15.99	51.47	48.57	43.23	56.00	227	43689	0.4	73	25.04	4396	1.22	214	0.20	36	5.0	3.4	2.4	24.0
30-Oct-91	13.14	16.90	84.01	53.29	62.48	60.67	290	43979	0.5	73	28.70	4425	1.40	216	0.23	36	2.8	2.8	1.4	16.6
31-Oct-91	12.77	16.70	83.26	52.24	58.18	59.63	283	44262	0.5	74	27.88	4453	1.36	217	0.23	36	4.0	4.0	0.0	20.0
1-Nov-91	11.50	16.00	55.98	48.59	43.27	56.01	231	44493	0.4	74	27.25	4505	1.33	220	0.22	37	4.6	3.6	0.6	19.3
2-Nov-91	12.49	16.54	73.25	51.43	54.87	58.83	267	44761	0.4	75	25.86	4531	1.26	221	0.21	37	3.2	2.9	0.4	15.5
3-Nov-91	11.86	16.20	59.79	49.64	47.57	57.06	242	45003	0.4	75	21.40	4553	1.04	222	0.17	37	4.0	3.2	0.0	18.5
4-Nov-91	9.86	15.10	22.83	43.88	24.08	51.36	167	45170	0.3	75	25.46	4578	1.24	223	0.21	37	6.4	2.6	23.2	18.7
5-Nov-91	11.68	16.10	61.66	49.12	45.45	56.54	241	45410	0.4	76	25.46	4578	1.24	223	0.21	37	3.0	3.0	0.2	15.8
6-Nov-91	18.09	24.55	76.53	93.32	67.69	105.42	386	45796	0.7	76	39.72	4618	1.94	225	0.32	38	2.8	3.8	0.0	17.4
7-Nov-91	13.89	19.26	62.67	65.63	57.79	71.76	291	46087	0.5	77	30.37	4648	1.48	227	0.25	38	4.0	3.6	0.0	19.4
8-Nov-91	15.31	21.13	67.35	75.46	61.14	83.13	324	46410	0.5	78	33.53	4682	1.64	228	0.27	38	7.0	4.5	0.0	22.2
9-Nov-91	15.13	21.73	66.77	78.58	60.72	81.72	325	46735	0.5	78	33.14	4715	1.62	230	0.27	38	5.0	4.6	0.0	23.3
10-Nov-91	14.67	20.52	65.24	72.25	59.63	78.01	310	47045	0.5	79	32.11	4747	1.57	232	0.26	39	4.0	4.0	0.0	24.5
11-Nov-91	14.18	19.25	63.64	65.61	58.48	74.10	295	47341	0.5	79	31.02	4778	1.51	233	0.25	39	4.0	4.0	0.0	23.6
12-Nov-91	12.37	17.22	57.66	54.96	54.21	59.58	256	47597	0.4	79	26.99	4805	1.32	234	0.22	39	5.5	3.0	21.2	19.6
13-Nov-91	10.34	13.90	50.93	37.59	49.40	43.25	205	47802	0.3	80	22.46	4827	1.10	235	0.18	39	2.6	2.6	8.6	14.6
14-Nov-91	11.10	12.80	53.47	31.87	51.22	49.41	210	48012	0.3	80	24.16	4851	1.18	237	0.20	39	3.2	3.2	1.4	16.3
15-Nov-91	12.40	19.59	57.76	67.40	54.28	59.83	271	48283	0.5	81	27.06	4879	1.32	238	0.22	40	2.0	3.0	1.0	18.2
16-Nov-91	11.57	15.79	54.99	47.49	52.30	53.11	235	48518	0.4	81	25.19	4904	1.23	239	0.20	40	4.6	3.2	0.6	18.7
17-Nov-91	12.68	24.90	58.68	95.15	54.94	62.06	308	48827	0.5	82	27.68	4931	1.35	241	0.23	40	3.9	3.4	1.4	20.5
18-Nov-91	13.94	36.29	62.83	154.76	57.90	72.14	398	49225	0.7	82	30.48	4962	1.49	242	0.25	40	4.0	4.0	0.0	21.2
19-Nov-91	16.17	22.46	70.20	82.38	63.17	90.05	344	49569	0.6	83	35.45	4997	1.73	244	0.29	41	6.3	4.6	0.0	23.2
20-Nov-91	12.75	19.21	94.00	65.39	55.10	64.86	311	49880	0.5	83	27.83	5025	1.36	245	0.23	41	6.3	4.0	0.0	26.4
21-Nov-91	16.82	24.85	100.80	94.90	64.71	95.63	398	50278	0.7	84	36.90	5062	1.80	247	0.30	41	8.0	4.8	0.0	29.7
22-Nov-91	16.85	24.89	101.06	95.11	64.78	95.85	399	50677	0.7	85	36.96	5099	1.80	249	0.30	41	7.2	4.3	0.0	29.5
23-Nov-91	12.76	19.22	62.63	65.47	55.13	64.95	280	50957	0.5	85	27.86	5127	1.36	250	0.23	42	6.4	4.0	0.0	21.3
24-Nov-91	12.62	19.03	53.73	64.46	54.80	63.90	269	51225	0.4	86	27.55	5154	1.34	251	0.22	42	3.6	3.6	2.8	19.4
25-Nov-91	10.46	16.03	50.19	48.75	49.69	47.52	223	51448	0.4	86	22.72	5177	1.11	253	0.18	42	3.6	3.6	0.6	19.4
26-Nov-91	13.64	20.44	76.25	71.83	57.20	71.58	311	51759	0.5	87	29.81	5207	1.45	254	0.24	42	3.4	3.4	0.0	23.2
27-Nov-91	15.75	23.37	94.39	87.16	62.19	87.56	370	52129	0.6	87	34.52	5241	1.68	256	0.28	43	8.0	4.6	0.0	28.6
28-Nov-91	17.31	25.53	100.15	98.46	65.86	99.34	407	52536	0.7	88	37.99	5279	1.85	258	0.31	43	8.0	5.1	0.0	33.9
29-Nov-91	14.85	22.12	69.25	80.60	60.05	80.72	328	52864	0.6	88	32.51	5312	1.59	259	0.26	43	8.0	4.4	0.0	24.3
30-Nov-91	14.41	21.51	65.60	77.42	59.02	77.41	315	53179	0.5	89	31.53									

HANSENS

DEL PARK

	TREE						CATCHMENT				Total (lts)	Cum (lts)	Total (mm)	Cum (mm)	1/6 (mm)	Cum 1/6 (mm)	PAN Old* (mm)	EVAP New** (mm)	RAIN (mm)	TEMP Max (°C)
	1 (lts)	2 (lts)	3 (lts)	4 (lts)	5 (lts)	6 (lts)	Total (lts)	Cum (lts)	Total (mm)	Cum (mm)										
23-Dec-91	21.77	31.71	89.35	130.80	66.35	133.06	473	61991	0.8	104	47.93	6234	2.34	304	0.39	51	7.8	5.4	3.8	31.4
24-Dec-91	8.75	13.67	36.11	36.39	32.64	34.64	162	62154	0.3	104	18.93	6253	0.92	305	0.15	51	12.0	3.0	20.0	22.0
25-Dec-91	6.15	10.06	25.16	17.50	28.74	14.95	103	62256	0.2	104	14.62	6267	0.71	306	0.12	51	2.8	3.0	4.0	21.8
26-Dec-91	15.07	22.42	65.16	82.19	53.63	82.38	321	62577	0.5	105	32.99	6300	1.61	307	0.27	51	4.0	5.0	0.0	22.2
27-Dec-91	15.83	23.48	67.46	87.75	55.80	88.18	339	62915	0.6	105	34.70	6335	1.69	309	0.28	52	7.0	5.6	0.0	23.6
28-Dec-91	17.59	25.92	81.84	100.48	62.78	101.45	390	63306	0.7	106	38.61	6374	1.88	311	0.31	52	6.0	6.0	0.0	27.4
29-Dec-91	20.80	30.37	87.28	123.79	65.54	125.75	454	63759	0.8	107	45.77	6419	2.23	313	0.37	52	6.8	6.8	0.0	28.7
30-Dec-91	20.86	30.45	88.59	124.21	66.00	126.18	456	64215	0.8	108	45.90	6465	2.24	315	0.37	53	6.8	6.8	0.0	29.0
31-Dec-91	16.30	24.13	55.13	91.15	49.43	91.72	328	64543	0.6	108	35.75	6501	1.74	317	0.29	53	5.2	5.2	0.0	24.8
1-Jan-92	16.00	23.71	65.85	88.93	57.33	89.40	341	64884	0.6	109	35.07	6536	1.71	319	0.29	53	4.6	4.6	0.0	23.8
2-Jan-92	19.41	22.35	80.90	81.81	61.84	87.66	354	65238	0.6	109	42.66	6579	2.08	321	0.35	53	7.6	7.6	0.0	26.3
3-Jan-92	21.65	22.85	88.31	84.46	66.89	96.95	381	65620	0.6	110	47.66	6626	2.33	323	0.39	54	5.8	5.8	0.0	30.8
4-Jan-92	22.96	24.03	92.65	90.58	69.85	104.80	405	66024	0.7	111	50.59	6677	2.47	326	0.41	54	8.5	8.5	0.0	34.6
5-Jan-92	23.30	24.70	93.75	94.12	70.60	108.87	415	66440	0.7	111	51.33	6728	2.50	328	0.42	55	8.0	8.0	0.0	34.9
6-Jan-92	22.92	24.48	92.49	92.96	69.74	106.45	409	66849	0.7	112	50.48	6779	2.46	331	0.41	55	8.0	8.0	0.0	32.8
7-Jan-92	22.81	24.24	92.15	91.71	69.51	111.34	412	67261	0.7	113	50.25	6829	2.45	333	0.41	56	8.0	8.0	0.0	32.9
8-Jan-92	23.62	24.95	94.80	95.43	71.31	109.02	419	67680	0.7	114	52.04	6881	2.54	336	0.42	56	10.1	8.6	0.0	33.3
9-Jan-92	23.46	25.13	94.30	96.37	70.97	109.49	420	68099	0.7	114	51.70	6933	2.52	338	0.42	56	8.0	8.0	0.0	33.3
10-Jan-92	20.77	22.25	85.41	81.29	64.91	92.19	367	68466	0.6	115	45.70	6979	2.23	340	0.37	57	8.0	8.0	0.0	31.1
11-Jan-92	21.91	23.45	89.17	87.55	67.47	99.14	389	68855	0.7	116	48.24	7027	2.35	343	0.39	57	9.2	9.2	0.0	33.4
12-Jan-92	22.67	23.95	91.67	90.22	69.18	103.88	402	69256	0.7	116	49.93	7077	2.44	345	0.41	58	8.4	8.4	0.0	34.4
13-Jan-92	23.00	24.69	92.77	94.05	69.93	106.63	411	69668	0.7	117	50.66	7127	2.47	348	0.41	58	8.0	8.0	0.0	33.4
14-Jan-92	22.11	23.93	89.83	90.06	67.93	100.91	395	70062	0.7	118	48.69	7176	2.37	350	0.40	58	8.0	8.0	0.0	32.8
15-Jan-92	13.25	28.43	80.89	113.63	70.90	91.99	399	70461	0.7	118	42.65	7219	2.08	352	0.35	59	8.0	8.0	0.0	31.9
16-Jan-92	13.40	32.23	89.95	133.53	66.32	100.85	436	70898	0.8	119	48.77	7267	2.38	355	0.40	59	10.0	9.0	0.0	36.4
17-Jan-92	12.94	32.96	91.68	137.33	70.85	102.55	448	71346	0.8	120	49.93	7317	2.44	357	0.41	59	6.2	6.2	0.0	30.7
18-Jan-92	11.08	27.62	78.96	109.41	59.08	90.11	376	71722	0.6	120	41.36	7359	2.02	359	0.34	60	6.0	6.0	0.0	25.2
19-Jan-92	10.95	27.04	77.58	106.36	57.40	88.75	368	72090	0.6	121	40.42	7399	1.97	361	0.33	60	4.0	4.0	0.0	21.0
20-Jan-92	9.13	19.26	59.03	65.65	43.04	70.61	267	72357	0.5	122	27.91	7427	1.36	362	0.23	60	5.2	3.4	1.2	21.8
21-Jan-92	9.16	20.99	63.16	74.73	43.13	74.65	286	72643	0.5	122	30.70	7458	1.50	364	0.25	61	1.6	3.5	0.6	22.5
22-Jan-92	11.12	26.53	76.37	103.71	57.45	87.57	363	73006	0.6	123	39.61	7497	1.93	366	0.32	61	4.0	4.0	0.0	22.9
23-Jan-92	12.68	29.73	83.98	120.41	65.90	95.01	408	73413	0.7	123	44.74	7542	2.18	368	0.36	61	8.0	8.0	0.0	27.0
24-Jan-92	13.23	30.94	86.86	126.74	67.74	97.83	423	73837	0.7	124	46.68	7589	2.28	370	0.38	62	7.6	7.6	0.0	32.7
25-Jan-92	13.38	33.09	91.98	137.98	69.71	102.84	449	74286	0.8	125	50.13	7639	2.45	373	0.41	62	8.2	8.2	0.0	34.5
26-Jan-92	13.71	33.75	93.57	141.48	71.65	104.40	459	74744	0.8	126	51.21	7690	2.50	375	0.42	63	8.6	8.6	0.0	34.9
27-Jan-92	13.01	32.25	89.98	133.59	68.30	100.88	438	75182	0.8	126	48.79	7739	2.38	378	0.40	63	8.0	8.0	0.0	35.6
28-Jan-92	13.55	33.35	92.61	139.37	71.32	103.46	454	75636	0.8	127	50.56	7790	2.47	380	0.41	63	8.0	8.0	0.0	35.3
29-Jan-92	16.15	19.66	94.16	84.07	69.19	88.63	372	76008	0.6	128	51.60	7841	2.52	382	0.42	64	8.0	8.0	0.0	37.0
30-Jan-92	16.15	19.83	94.21	100.68	69.23	113.45	414	76421	0.7	129	51.64	7893	2.52	385	0.42	64	11.2	9.0	0.0	37.2
31-Jan-92	15.67	19.34	91.05	98.15	67.46	109.92	402	76823	0.7	129	49.51	7942	2.41	387	0.40	65	8.6	8.6	0.0	36.5
1-Feb-92	15.50	18.17	89.89	93.45	66.81	103.27	387	77210	0.7	130	48.73	7991	2.38	390	0.40	65	8.4	8.4	0.0	32.6
2-Feb-92	13.48	13.53	76.62	70.41	59.41	79.60	313	77523	0.5	130	39.78	8031	1.94	392	0.32	65	5.6	5.6	0.0	30.2
3-Feb-92	12.02	13.42	66.97	69.17	54.02	77.34	293	77816	0.5	131	33.27	8064	1.62	393	0.27	66	5.8	5.8	0.0	27.0
4-Feb-92	13.99	16.69	79.95	78.16	61.26	88.74	339	78155	0.6	131	42.02	8106	2.05	395	0.34	66	4.0	5.4	0.0	27.0
5-Feb-92	14.01	17.30	80.10	82.56	61.35	95.81	351	78506	0.6	132	42.12	8148	2.05	397	0.34	66	8.0	6.0	0.0	26.5
6-Feb-92	10.79	12.26	58.90	60.47	49.52	71.78	264	78770	0.4	132	27.83	8176	1.36	399	0.23	66	1.2	4.0	9.2	29.4
7-Feb-92	11.86	14.26	65.92	72.71	53.43	80.56	299	79068	0.5	133	32.56	8209	1.59	400	0.26	67	8.6	6.0	0.0	30.8
8-Feb-92	5.24	7.87	22.29	25.28	29.08	34.23	124	79192	0.2	133	9.31	8218	0.45	401	0.08	67	3.9	2.0	23.9	20.9
9-Feb-92	10.21	14.44	55.04	59.88	47.36	64.63	252	79444	0.4	134	25.23	8243	1.23	402	0.21	67	4.2	4.2	0.2	15.7
10-Feb-92	11.02	13.81	60.38	66.71	50.34	74.38	277	79721	0.5	134	28.82	8272	1.41	404	0.23	67	4.1	4.1	0.1	24.0
11-Feb-92	15.04	16.42	83.18	79.72	58.06	89.21	342	80062	0.6	135	40.74	8313	1.99	405	0.33	68	6.0	6.0	0.0	24.5
12-Feb-92	14.73	15.96	80.23	77.06	63.93	86.45	338	80401	0.6	135	38.84	8352	1.89	407	0.32	68	7.0	7.0	5.0	34.2
13-Feb-92	11.06	13.89	66.83	64.98	49.82	73.93	281	80681	0.5	136	30.21	8382	1.47	409	0.25	68	5.8	4.0	4.8	24.0
14-Feb-92	10.74	12.61	58.61	57.58	49.12	66.26	255	80936	0.4	136	24.91	8407	1.22	410	0.20	68	4.0	4.0	0.8	24.0
15-Feb-92	9.68	12.49	57.79	56.84	44.43	65.49	247	81183	0.4	137	24.39	8431	1.19	411	0.20	69	4.0	4.0	0.0	25.1
16-Feb-92	10.59	13.23	62.55	61.13	49.69	69.94	267	81450	0.5	137	27.45	8458	1.34	413	0.22	69	4.0	4.0	0.3	22.2
17-Feb-92	10.93	14.99	73.94	71.39	52.26	80.57	304	81754	0.5	138	34.78	8493	1.70	414	0.28	69	2.6	4.0	0.2	22.2
18-Feb-92	12.68	15.17	75.11	72.44	57.69	81.67	315	82069	0.5	138	35.54	8529	1.73	416	0.29	69	4.0	4.0	0.0	26.5
19-Feb-92	12.59	14.79	72.67	70.24	56.99	79.39	307	82375	0.5	139	33.97	8563	1.66	418	0.28	70	4.6	4.6	0.0	27.9
20-Feb-92	13.19	16.10	81.11	77.85	58.80	87.27	334	82710	0.6	139	39.40	8602	1.92	420	0.32	70	8.2	7.0	0.0	28.9
21-Feb-92	12.49	15.51	77.32	74.44	56.73	83.73	320	83030	0.5	140	36.96	8639	1.80	421	0.30	70	4.0	5.0	0.0	

Daily Water Uptake and Meteorological Measurements

	HANSENS						DEL PARK						PAN Old* (mm)	EVAP. New** (mm)	RAIN (mm)	TEMP Max (°C)			
	1 (trs)	2 (trs)	TREE 3 (trs) 4 (trs)		5 (trs)	6 (trs)	CATCHMENT Total (trs) Cum (trs)		Total (trs)	Cum (trs)	Total (mm)	Cum 1/6 (mm)(mm)					Cum 1/6 (mm)		
16-Mar-92	8.92	12.03	56.00	54.15	45.79	62.70	240	90791	0.4	153	22.46	9554	1.10	466	0.18	78			
17-Mar-92	7.80	10.68	44.97	46.30	38.82	54.56	203	90994	0.3	153	16.61	9571	0.81	467	0.14	78	3.4	3.4	21.6
18-Mar-92	9.52	13.13	59.70	60.58	44.80	69.37	257	91251	0.4	154	27.06	9598	1.32	468	0.22	78	1.0	3.5	23.0
19-Mar-92	6.37	7.97	28.25	30.54	22.97	38.22	134	91386	0.2	154	10.61	9609	0.52	469	0.09	78	2.0	3.6	26.0
20-Mar-92	6.75	8.59	30.58	34.13	23.76	41.95	146	91531	0.2	154	11.98	9621	0.58	469	0.10	78	4.0	1.8	21.7
21-Mar-92	5.40	6.11	18.13	19.76	14.38	27.04	91	91622	0.2	154	6.52	9627	0.32	470	0.05	78	2.8	2.4	22.8
22-Mar-92	10.98	13.49	66.66	62.66	48.91	71.52	274	91896	0.5	155	28.54	9656	1.39	471	0.23	79	0.8	1.0	6.2
23-Mar-92	11.18	13.97	70.45	65.48	52.79	74.45	288	92185	0.5	155	30.56	9686	1.49	473	0.25	79	4.0	4.0	24.2
24-Mar-92	11.53	14.45	72.41	68.28	51.87	77.35	296	92481	0.5	156	32.56	9719	1.59	474	0.26	79	2.5	3.4	0.1
25-Mar-92	10.66	14.07	68.03	56.52	51.43	64.04	265	92745	0.4	156	30.98	9750	1.51	476	0.25	79	4.0	4.0	0.0
26-Mar-92	10.66	14.08	68.09	60.65	51.47	70.73	276	93021	0.5	157	31.02	9781	1.51	477	0.25	80	4.8	3.4	1.2
27-Mar-92	10.82	14.30	69.51	63.54	52.47	72.96	284	93305	0.5	157	31.94	9813	1.56	479	0.26	80	4.0	4.0	0.0
28-Mar-92	10.50	13.86	66.64	60.98	50.44	69.62	272	93577	0.5	158	33.42	9876	1.63	482	0.27	80	4.0	4.2	0.0
29-Mar-92	11.07	14.66	71.81	67.10	54.10	72.93	292	93868	0.5	158	30.09	9843	1.47	480	0.24	80	4.0	4.0	0.0
30-Mar-92	10.68	14.10	68.23	62.86	51.56	67.96	275	94144	0.5	158	31.11	9907	1.52	483	0.25	81	4.0	4.1	0.0
31-Mar-92	11.01	14.57	71.24	64.52	53.69	70.49	286	94429	0.5	159	33.05	9940	1.61	485	0.27	81	4.4	4.4	0.0
SUM =	4136	6033	21151	21024	18039	24046	94429	159		9940		485	81				1418	1204	1443
MEAN =	11	16	58	57	49	66	258	0.4		27		1.32	0.22				3.9	3.3	3.9
MAX =	24	36	104	155	81	147	527	0.9		52		2.54	0.42				12.0	9.2	73.0
MIN =	1	6	7	4	8	15	65	0.1		4		0.19	0.03				0.0	0.2	0.0

* Old pan evaporation is uncorrected data from CALM, Dwellingup.

** New pan evaporation is data corrected for error on rainy days as described in Methods and Appendix 2 of this report.