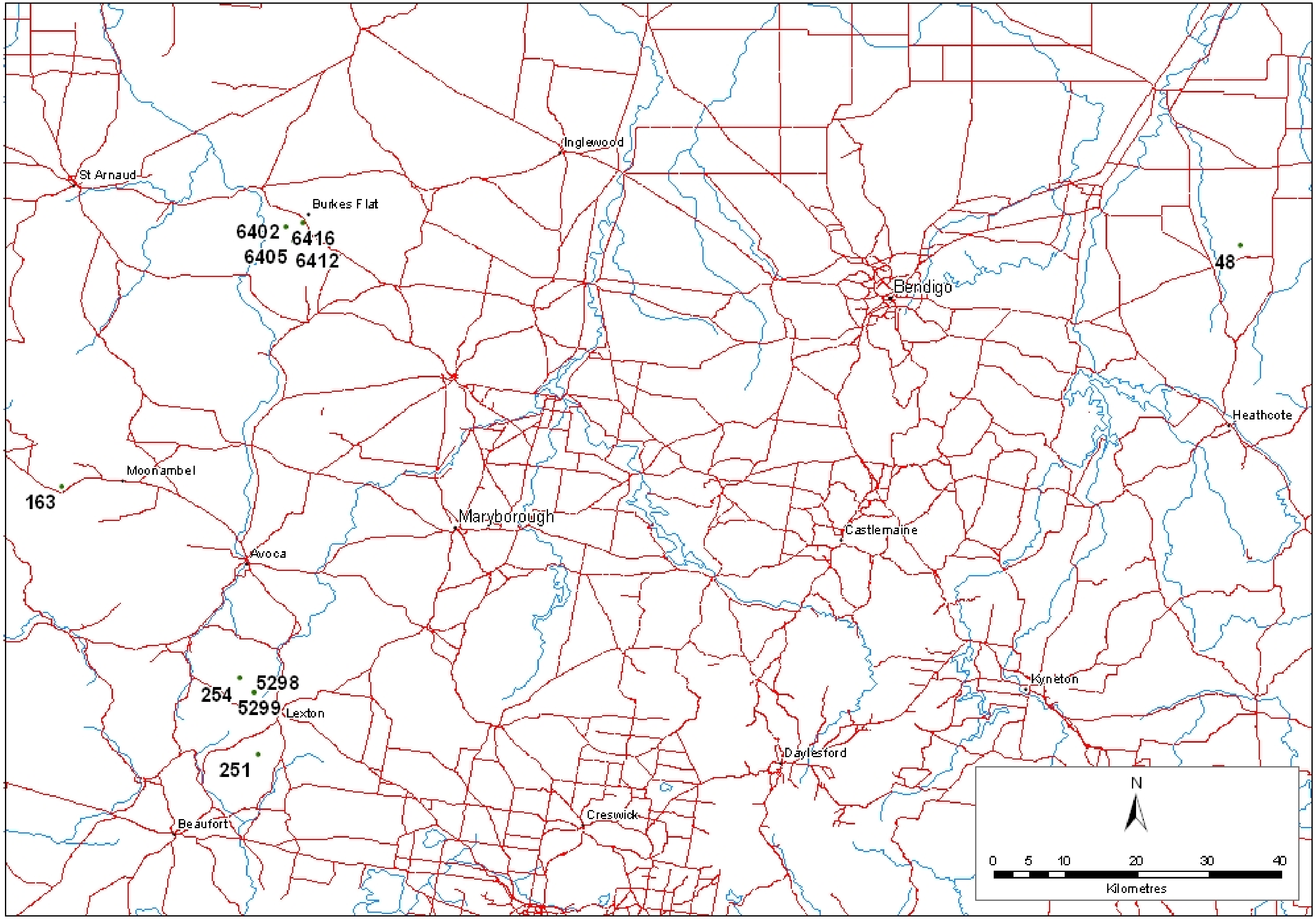
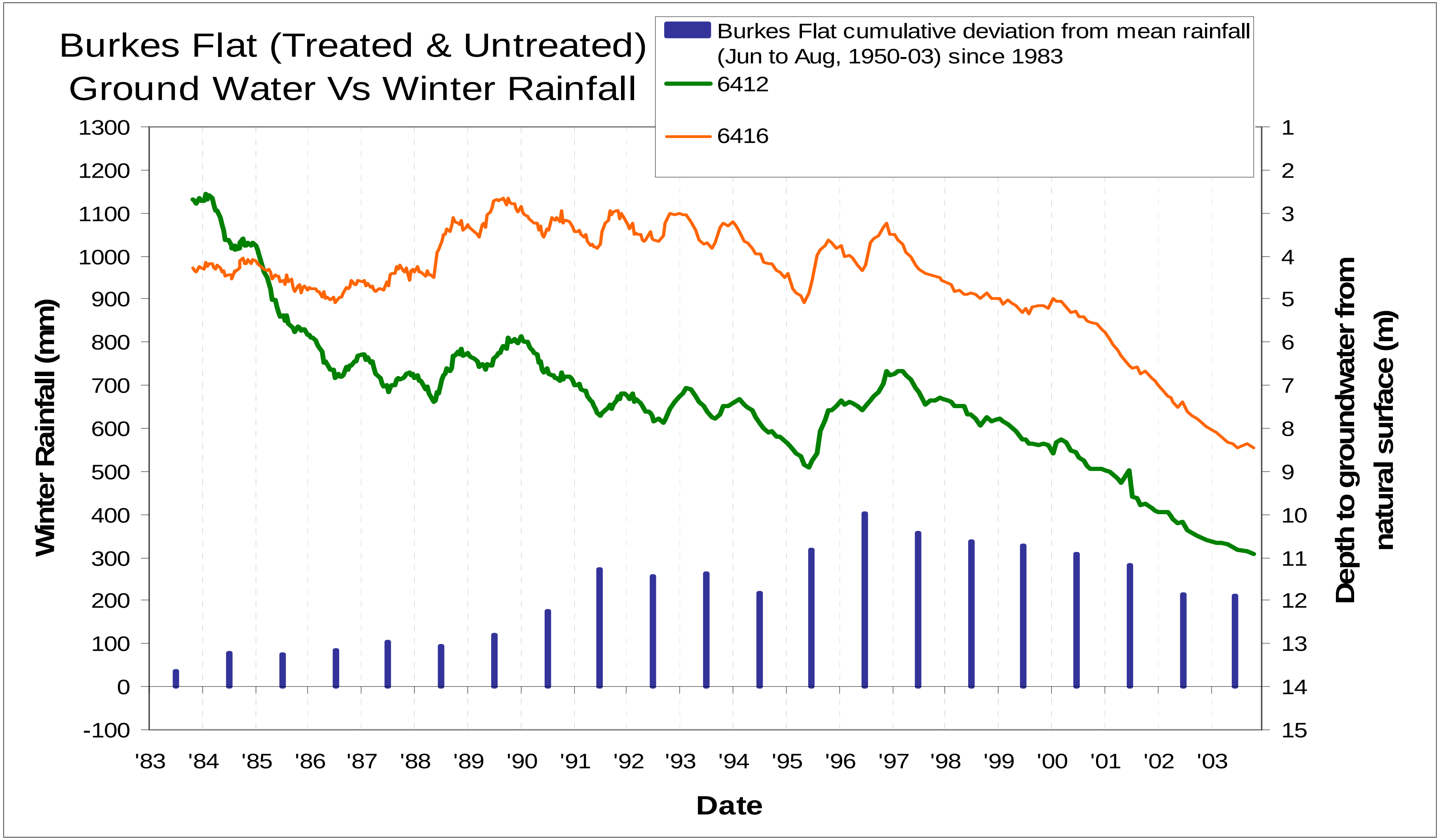
DEPARTMENT OF
PRIMARY INDUSTRIES

9/06/2009

Victoria
The Place To Be


Inglewood
St Arnaud
Burkes Flat
6402
6416
6405
6412
Bendigo
48
Heathcote
Moonambel
163
Maryborough
Castlemaine
Avoca
5298
254
5299
Lexton
Kyneton
Daylesford
251
Creswick
Beaufort
N
0 5 10 20 30 40
Kilometres


Burkes Flat (Treated & Untreated)
Ground Water Vs Winter Rainfall
Burkes Flat cumulative deviation from mean rainfall (Jun to Aug, 1950-03) since 1983
6412
6416
Winter Rainfall (mm)
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
-100
Depth to groundwater from natural surface (m)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
'83
'84
'85
'86
'87
'88
'89
'90
'91
'92
'93
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
Date

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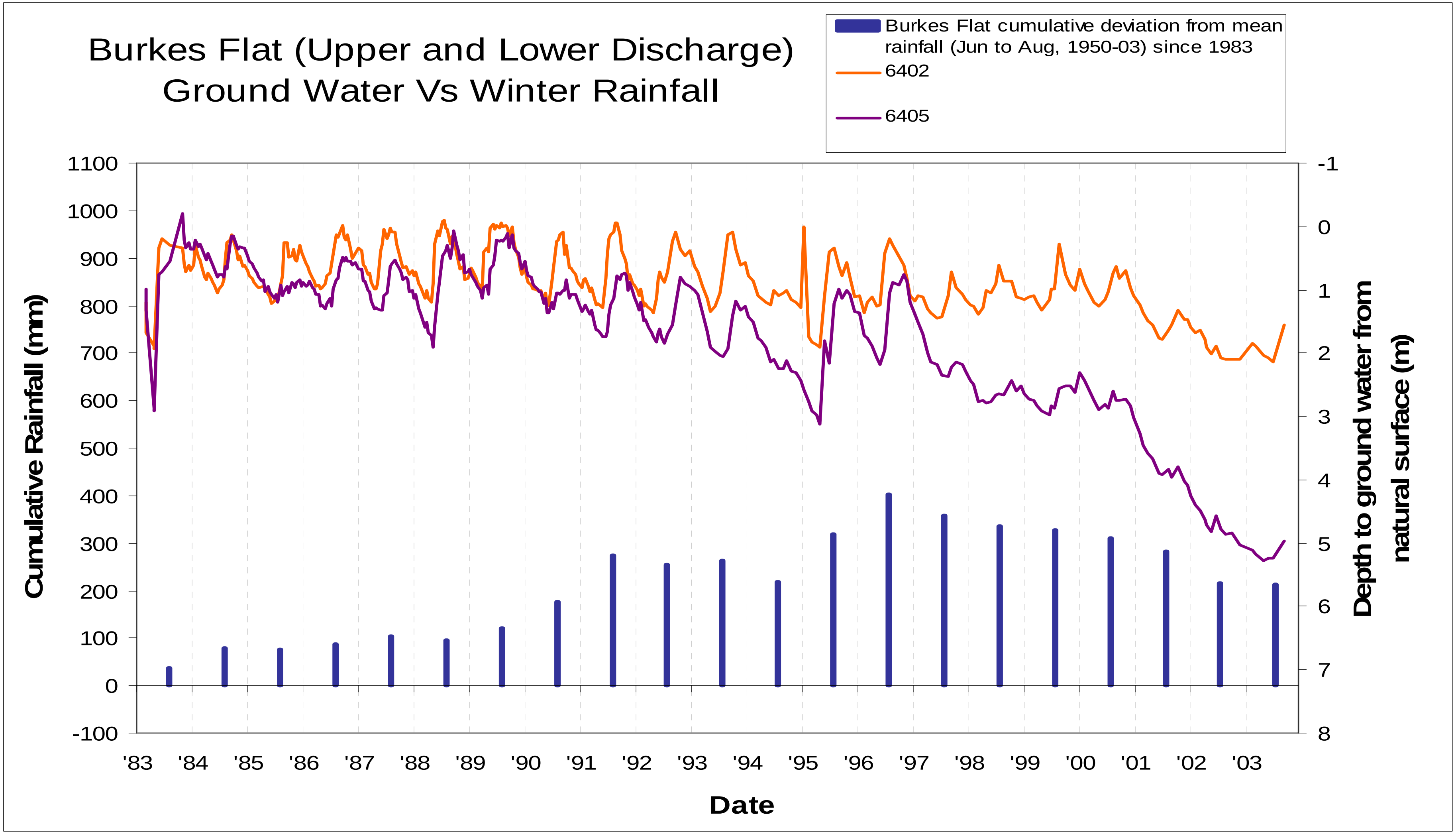
Burkes Flat Observations

- ↑ Strong initial watertable decline under treatment
- ↑ Initial decline relative to control site continued until early 1990s during high rainfall trend
- ↑ Greater decline under treatment following wet years of 1988 and 1989
- ↑ Recent decline appears mainly climate induced (present management - mixed cropping & grazing)

But what about the discharge areas?………



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Some Conclusions

- ↑ Long-term groundwater record is essential to understanding impacts of climate and land use
- ↑ Vegetative management of salinity can succeed in responsive local scale GFS (eg, Burkes Flat)
- ↑ Groundwater declines since 1996 are mainly due to climate impact
- ↑ Lack of recharge since 1996 exacerbated by continued soil moisture decline, particularly in upper landscape

Further Conclusions

- ↑ Climate pattern influences when, where and how much recharge occurs
- ↑ Generally, the higher the landscape position, the less likelihood of in-situ recharge during dry climate pattern
- ↑ Most discharge areas also recharge and continue to do so during dry climate phases
- ↑ During dry climate phases, local processes within untreated discharge areas can contribute to maintenance of high watertables and salt export