



The effect of land cover change on surface wind resource

and its implications for wind energy generation

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of Master of Engineering Science in Renewable Energy Engineering.*



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Acknowledgements

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Abstract

This is the abstract. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

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List of Abbreviations

CDMA Code Division Multiple Access	8
GSM Global System for Mobile communication	7
TDMA Time Division Multiple Access	7
UA Used Acronym	8

Introduction

1.1 | Background

1.2 | Research aims and motivations

1.3 | Objectives and scope

1.4 | Thesis statement and hypothesis

1.5 | Overview and structure of thesis

Note that you may have multiple `\include` statements here, e.g. one for each subsection.

General structure of this chapter should read as follows. This chapter should be used to motivate your study and answer the question “Why is this important?”. Also, it should define what you set out to achieve (these will be revisited in the conclusions chapter). You should describe your approach to the Aims and Objectives, including an evaluation part.

Motivation

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language. There is no need for special content, but the length of words should match the language.

Aims and Objectives

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Our Approach

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Document Structure

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Literature Review

2.1 | Overview

2.2 | Methodologies for analysing the effect of land cover change

2.2.1 | Approaches

2.2.2 | Datasets and models

2.3 | Findings and results on the effect of land cover change on surface winds

2.3.1 | Observed changes in near-surface wind speed over the last few decades

2.3.1.1 | Slowdown and "global terrestrial stilling"

2.3.1.2 | Trend reversal and large-scale ocean-atmosphere circulations

2.3.1.3 | Instrument drift

2.3.2 | Conversion of agricultural land into urban centres

2.3.2.1 | Rate of urbanisation and size of cities

2.3.2.2 | Urban heating effects

2.3.2.3 | Anomalies and the "urban wind island effect"

2.3.3 | Conversion of natural forest into agricultural land

2.3.3.1 | Roughness length changes

2.3.3.2 | Teleconnections

2.4 | Vegetation-atmosphere interactions and their possible mechanisms

2.4.1 | Secondary organic aerosols

2.4.2 | Convective cloud development

2.4.3 | Surface and latent heat fluxes

2.4.4 | Surface temperature and pressure

In this section you need to explain all the theory required to understand your dissertation (i.e. the following chapters). But really in this chapter I am going to show you some examples.

An Example of an Equation

The following is the most beautiful equation in maths, Euler's Identity (Equation 2.1).

$$e^{i\pi} + 1 = 0 \quad (2.1)$$

where:

e = the constant

i = of complex fame

π = not of the apple variety

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match

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An Example of a Numbered List

This is an example of a numbered list:

1. This is my first point
2. My second
3. My third!
4. And my fourth?

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

An Example of a Bulleted List

This is an example of a bulleted list:

- This is my first point
- My second
- My third!

■ And my fourth?

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

An Example of a Figure

A test figure is shown in Figure 2.1.



Figure 2.1: A test figure. This caption is huge, but in the list of figures only the smaller version in the square brackets will appear.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information

about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

An Example of a Side-by-Side Figure

Two figures shown side-by-side are shown in Figure 2.2.

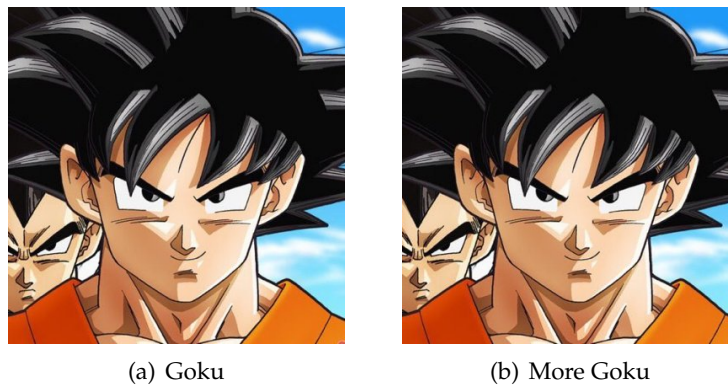


Figure 2.2: The same super saiyan. Two times.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

An Example of Using Acronyms

In the early nineties, GSM was deployed in many European countries. Global System for Mobile communication (GSM) offered for the first time international roaming for mobile subscribers. The GSM’s use of Time Division Multiple Access (TDMA) as its communication standard was debated at length. And every now and then there are big

Table 2.1: A Beautiful and Complex Table (for tables captions above)

		$w = 8$			$w = 16$		
		$t = 0$	$t = 1$	$t = 2$	$t = 0$	$t = 1$	$t = 2$
$dir = 1$							
c		0.0790	0.1692	0.2945	0.3670	0.7187	3.1815
c		-0.8651	50.0476	5.9384	-9.0714	297.0923	46.2143
c		124.2756	-50.9612	-14.2721	128.2265	-630.5455	-381.0930
$dir = 0$							
c		0.0357	1.2473	0.2119	0.3593	-0.2755	2.1764
c		-17.9048	-37.1111	8.8591	-30.7381	-9.5952	-3.0000
c		105.5518	232.1160	-94.7351	100.2497	141.2778	-259.7326

discussion whether Code Division Multiple Access (CDMA) should have been chosen over TDMA.

If you want to know more about Global System for Mobile communication (GSM), Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA) and other acronyms, just read a book about mobile communication. Just to mention it: There is another Used Acronym (UA), for testing.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

An Example of a Table

A beautiful table is shown in Table 2.1, data from Ebejer et al. (2012) (when citing as part of text, otherwise use parentheses (Ebejer et al., 2012) version).

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like

“Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

An Example of a Long Table

The following is an example of a table (Table 2.2) spanning multiple pages.

Table 2.2: Performance of Livity in HTS mode against the Livity-compatible DUD-E targets. The mean (and standard deviation in parentheses) values of ROC AUC using Tanimoto is 0.622 (± 0.132), while for Tversky it is 0.671 (± 0.142); the mean $EF_{1\%}$ using Tanimoto is 5.648 (± 8.668), while for $EF_{1\%}$ using Tversky it is 9.047 (± 12.713).

Target	No. of Ac- tives	No. of De- coys	ROC AUC Tani- moto	ROC AUC Tver- sky	BEDROC Tani- moto	BEDROC Tver- sky	$EF_{1\%}$ Tani- moto	$EF_{1\%}$ Tversky
ABL1	182	10,750	0.563	0.473	0.077	0.077	1.653	2.204
ACE	281	16,877	0.787	0.787	0.336	0.401	12.425	19.525
ACES	453	26,242	0.634	0.645	0.077	0.155	1.766	5.518
ADA	93	5,450	0.724	0.660	0.149	0.147	3.251	3.251
ADA17	532	35,898	0.638	0.728	0.103	0.283	1.317	9.030
ADRB1	247	15,850	0.523	0.647	0.065	0.129	1.619	5.262
ADRB2	231	14,999	0.523	0.589	0.052	0.040	1.735	0.000
AKT1	293	16,450	0.386	0.548	0.039	0.107	2.737	3.080
AKT2	117	6,900	0.511	0.685	0.140	0.194	8.568	8.568
ALDR	159	8,988	0.574	0.610	0.202	0.172	10.747	6.322
AMPC	48	2,845	0.521	0.541	0.049	0.023	0.000	0.000
ANDR	269	14,349	0.722	0.742	0.194	0.354	4.839	24.938
AOFB	121	6,875	0.422	0.464	0.045	0.027	1.652	0.000
BACE1	283	18,100	0.441	0.775	0.017	0.310	0.000	13.062
BRAF	152	9,950	0.612	0.639	0.208	0.165	12.502	5.264
CASP3	199	10,694	0.600	0.734	0.068	0.258	0.502	7.031
CDK2	474	27,838	0.467	0.507	0.021	0.048	0.000	1.055
COMT	41	3,846	0.789	0.889	0.338	0.665	19.447	58.341
CP2C9	120	7,449	0.518	0.634	0.058	0.186	1.660	8.299
CP3A4	170	11,787	0.450	0.493	0.022	0.057	0.000	2.345
CSF1R	166	12,149	0.526	0.542	0.136	0.152	6.031	7.238
CXCR4	40	3,405	0.575	0.722	0.217	0.134	12.665	0.000
DEF	102	5,699	0.732	0.833	0.212	0.379	10.786	15.689
DHI1	330	19,348	0.481	0.595	0.089	0.062	2.422	1.211

(continued...)

Target	No. of Ac- tives	No. of De- coys	ROC AUC Tani- moto	ROC AUC Tver- sky	BEDROC Tani- moto	BEDROC Tver- sky	EF _{1%} Tani- moto	EF _{1%} Tver- sky
DPP4	533	40,941	0.586	0.591	0.154	0.157	4.312	3.937
DRD3	480	34,048	0.484	0.441	0.043	0.046	1.251	0.626
DYR	231	17,196	0.694	0.758	0.210	0.230	6.504	7.371
EGFR	542	35,047	0.593	0.491	0.054	0.037	0.922	0.000
ESR1	383	20,683	0.838	0.861	0.527	0.594	31.281	39.101
ESR2	367	20,199	0.844	0.870	0.563	0.644	20.130	32.644
FA10	537	28,324	0.564	0.674	0.058	0.118	0.930	2.232
FA7	114	6,249	0.762	0.859	0.210	0.332	6.105	8.721
FABP4	47	2,749	0.786	0.744	0.191	0.276	0.000	10.623
FAK1	100	5,350	0.642	0.531	0.111	0.065	2.019	0.000
FGFR1	139	8,698	0.511	0.522	0.036	0.088	0.722	1.445
FKB1A	111	5,799	0.605	0.751	0.162	0.164	8.122	3.610
FNTA	592	51,493	0.411	0.625	0.012	0.132	0.000	4.053
FPPS	85	8,842	0.917	0.985	0.323	0.776	2.360	36.581
GCR	258	14,998	0.805	0.834	0.244	0.324	3.092	8.116
GLCM	54	3,790	0.667	0.685	0.182	0.279	1.873	11.240
GRIA2	158	11,842	0.662	0.684	0.248	0.154	11.392	5.696
GRIK1	101	6,547	0.656	0.668	0.203	0.102	7.978	1.995
HDAC2	185	10,300	0.676	0.734	0.187	0.201	4.318	4.318
HDAC8	170	10,449	0.640	0.819	0.120	0.377	2.946	8.250
HIVINT	100	6,640	0.390	0.554	0.030	0.116	0.000	3.018
HIVPR	535	35,724	0.663	0.872	0.072	0.490	0.187	23.898
HIVRT	338	18,884	0.495	0.475	0.124	0.085	4.443	1.777
HMDH	170	8,750	0.480	0.906	0.068	0.652	2.358	35.963
HS90A	88	4,850	0.635	0.506	0.096	0.083	0.000	3.436
HXK4	92	4,700	0.662	0.803	0.206	0.307	15.192	9.766
IGF1R	148	9,300	0.502	0.575	0.057	0.189	2.037	14.941
INHA	43	2,300	0.493	0.575	0.031	0.045	0.000	0.000
ITAL	138	8,500	0.619	0.465	0.037	0.065	0.000	0.728
JAK2	107	6,500	0.472	0.475	0.073	0.118	2.807	6.549
KIF11	116	6,850	0.755	0.781	0.149	0.219	4.289	2.574
KIT	166	10,449	0.463	0.437	0.045	0.030	0.000	0.000
KITH	57	2,850	0.649	0.838	0.228	0.709	14.069	47.483
KPCB	135	8,699	0.753	0.813	0.220	0.338	8.923	12.641
LCK	419	27,391	0.471	0.437	0.031	0.043	0.000	1.910
LKHA4	171	9,448	0.718	0.694	0.238	0.150	8.203	1.758
MAPK2	101	6,148	0.660	0.670	0.174	0.199	5.988	3.992
MCR	94	5,149	0.816	0.888	0.215	0.454	6.436	19.307
MET	166	11,249	0.566	0.531	0.130	0.065	6.032	0.603
MK01	79	4,550	0.518	0.602	0.121	0.206	5.095	3.821
MK10	104	6,600	0.488	0.489	0.020	0.031	0.962	0.962
MK14	578	35,847	0.511	0.589	0.040	0.064	0.173	0.519
MMP13	572	37,199	0.648	0.753	0.134	0.268	2.446	9.957
MP2K1	121	8,146	0.669	0.569	0.187	0.058	3.293	0.823
NOS1	98	8,028	0.483	0.451	0.109	0.041	3.071	0.000
NRAM	98	6,200	0.853	0.859	0.342	0.290	11.221	3.060
PA2GA	99	5,150	0.793	0.756	0.225	0.153	1.020	3.059
PARP1	508	30,029	0.635	0.692	0.215	0.231	11.234	7.884

(continued...)

Target	No. of Ac- tives	No. of De- coys	ROC AUC Tani- moto	ROC AUC Tver- sky	BEDROC Tani- moto	BEDROC Tver- sky	EF _{1%} Tani- moto	EF _{1%} Tver- sky
PGH1	195	10,798	0.645	0.637	0.077	0.100	0.000	2.050
PGH2	435	23,139	0.716	0.780	0.166	0.291	3.444	9.874
PLK1	107	6,800	0.658	0.531	0.123	0.048	1.871	0.000
PNPH	103	6,946	0.575	0.578	0.161	0.181	4.888	8.799
PPARA	373	19,399	0.783	0.778	0.262	0.280	6.693	7.764
PPARD	240	12,250	0.547	0.544	0.078	0.098	1.665	2.498
PPARG	484	25,299	0.515	0.605	0.055	0.118	0.619	4.955
PRGR	293	15,648	0.740	0.793	0.142	0.318	2.053	14.714
PTN1	130	7,249	0.398	0.538	0.055	0.090	0.000	3.068
PUR2	50	2,700	0.851	0.837	0.281	0.255	7.857	1.964
PYGM	77	3,944	0.403	0.492	0.016	0.137	0.000	3.917
PYRD	111	6,449	0.682	0.710	0.462	0.413	34.027	16.118
RENI	104	6,956	0.720	0.789	0.043	0.138	0.000	0.000
ROCK1	100	6,300	0.347	0.449	0.020	0.084	1.000	4.000
RXRA	131	6,950	0.788	0.900	0.219	0.596	6.091	27.407
SAHH	63	3,450	0.874	0.852	0.598	0.542	35.050	27.084
SRC	524	34,500	0.565	0.477	0.065	0.050	0.382	0.573
TGFR1	133	8,499	0.609	0.639	0.147	0.154	10.565	4.528
THB	103	7,450	0.794	0.762	0.238	0.150	10.614	0.965
THRB	461	27,000	0.605	0.706	0.063	0.166	2.166	5.632
TRY1	449	25,975	0.711	0.815	0.147	0.280	2.898	6.688
TRYB1	148	7,650	0.670	0.670	0.153	0.132	3.378	3.378
TYSY	109	6,745	0.594	0.725	0.071	0.226	0.911	5.468
UROK	162	9,850	0.525	0.650	0.036	0.120	0.000	1.854
VGFR2	409	24,948	0.632	0.578	0.083	0.093	1.465	1.465
WEE1	102	6,150	0.934	0.929	0.789	0.797	59.348	61.294
XIAP	100	5,150	0.752	0.974	0.190	0.897	8.077	51.490

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

A Landscape Table Example

Next is an example of a wide table on a landscape oriented paper (Table 2.3).

Table 2.3: A table in landscape orientation.

m	x	y	z	a	A_m	B	C	x	y	z	a	A_m	B	C
1	16.128	+8.872	16.128	1.402	1.373	-146.6	-137.6	16.128	+8.872	16.128	1.402	1.373	-146.6	-137.6
2	3.442	-2.509	3.442	0.299	0.343	133.2	152.4	3.442	-2.509	3.442	0.299	0.343	133.2	152.4
3	1.826	-0.363	1.826	0.159	0.119	168.5	-161.1	1.826	-0.363	1.826	0.159	0.119	168.5	-161.1
4	0.993	-0.429	0.993	0.086	0.08	25.6	90	1.826	-0.363	1.826	0.159	0.119	168.5	-161.1
5	1.29	+0.099	1.29	0.112	0.097	-175.6	-114.7	1.826	-0.363	1.826	0.159	0.119	168.5	-161.1
6	0.483	-0.183	0.483	0.042	0.063	22.3	122.5	1.826	-0.363	1.826	0.159	0.119	168.5	-161.1
7	0.766	-0.475	0.766	0.067	0.039	141.6	-122	1.826	-0.363	1.826	0.159	0.119	168.5	-161.1
8	0.624	+0.365	0.624	0.054	0.04	-35.7	90	1.826	-0.363	1.826	0.159	0.119	168.5	-161.1
9	0.641	-0.466	0.641	0.056	0.045	133.3	-106.3	1.826	-0.363	1.826	0.159	0.119	168.5	-161.1
10	0.45	+0.421	0.45	0.039	0.034	-69.4	110.9	1.826	-0.363	1.826	0.159	0.119	168.5	-161.1
11	0.598	-0.597	0.598	0.052	0.025	92.3	-109.3	1.826	-0.363	1.826	0.159	0.119	168.5	-161.1

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

A Theorem Example

Theorem 2.4.1. *Let f be a function whose derivative exists in every point, then f is a continuous function.*

Theorem 2.4.2 (Pythagorean theorem). *This is a theorem about right triangles and can be summarised in the next equation*

$$x^2 + y^2 = z^2$$

And a consequence of Theorem 2.4.2 is the statement in the next corollary.

Corollary 2.4.2.1. *There’s no right rectangle whose sides measure 3 cm, 4 cm, and 6 cm.*

You can reference theorems such as 2.4.2 when a label is assigned.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

A Lemma Example

Lemma 2.4.3. *Given two line segments whose lengths are a and b respectively there is a real number r such that $b = ra$.*

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really?

Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

A Proof Example

Lemma 2.4.4. *Given two line segments whose lengths are a and b respectively there is a real number r such that $b = ra$.*

Proof. To prove it by contradiction try and assume that the statement is false, proceed from there and at some point you will arrive to a contradiction. \square

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

A Listing Example

Here you go.

```

1 import numpy as np
2
3 def incmatrix(genl1, genl2):
4     m = len(genl1)
5     n = len(genl2)
6     M = None #to become the incidence matrix
7     VT = np.zeros((n*m,1), int) #dummy variable
8
9     #compute the bitwise xor matrix
10    M1 = bitxormatrix(genl1)
11    M2 = np.triu(bitxormatrix(genl2),1)
12

```

```

13  for i in range(m-1):
14      for j in range(i+1, m):
15          [r,c] = np.where(M2 == M1[i,j])
16          for k in range(len(r)):
17              VT[(i)*n + r[k]] = 1;
18              VT[(i)*n + c[k]] = 1;
19              VT[(j)*n + r[k]] = 1;
20              VT[(j)*n + c[k]] = 1;
21
22          if M is None:
23              M = np.copy(VT)
24          else:
25              M = np.concatenate((M, VT), 1)
26
27          VT = np.zeros((n*m,1), int)
28
29  return M

```

Listing 2.1: My Listing Caption

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

An Algorithm Example

An algorithm example is shown in Algorithm 1. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Algorithm 1: An algorithm with caption

```

Data:  $n \geq 0$ 
Result:  $y = x^n$ 
 $y \leftarrow 1$ ;
 $X \leftarrow x$ ;
 $N \leftarrow n$ ;
while  $N \neq 0$  do
  if  $N$  is even then
     $X \leftarrow X \times X$ ;
     $N \leftarrow \frac{N}{2}$ ;           /* This is a comment */
  else
    if  $N$  is odd then
       $y \leftarrow y \times X$ ;
       $N \leftarrow N - 1$ ;
    end
  end
end

```

Some Technique One

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Some Sub-technique One

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a

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Some Sub-sub-technique One

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[

Some Technique Two]Some Technique Two with Super Long Title Which Will Overrun In Header Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show

what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Imagine some colourful description on Some Technique Three.

Evaluation Criteria

This section should contain information on the metrics and background used to evaluate your work.

Related Work

In this section you need to explain (and reference) similar work in literature. Make sure to:

- Give a systematic overview of papers with related/similar work
- Highlight similarities/differences to your work (perhaps in the form of a table)

For references use IEEE style (IEEE Ref. Guide) or Harvard style (Harvard Ref. Guide).

Note that this section may be sectioned based on the different aspects of your dissertation. Some referenced text, as an example (Arrighi, 2003; Ebejer et al., 2016; Withers-Martinez et al., 2012).

An Example of Suppressing Page Numbers on A Float Page

Kindly refer to Figure 2.3.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

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Summary

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Figure 2.3: Page numbers are suppressed on this page.

Methodology

3.1 | Approach

(ADD A FLOW CHART HERE)

To identify how vegetation loss may affect (or has historically affected) surface winds, we produced a series of spatial plots using GLASS-satellite derived data and ERA5 re-analysis data. These plots sought to uncover any spatiotemporal correlations between vegetation loss and key atmospheric variables such as wind speed, wind direction and mean sea level pressure. The rationale behind this was that were there to be any concrete spatiotemporal correlations, it would suggest strongly that there is some underlying dynamic between the variables (since a concrete pattern manifesting through both space and time purely by chance is unlikely).

In doing this, we first identified three focus regions which were likely to yield results either due to historically extensive degrees of vegetation change or other unique circumstances such as having a sharp delineation between natural and agricultural land cover. For each of these regions, we then strategically selected two 5-year long historical periods for comparison. The periods were selected in such a fashion so as to control (to the extent possible) for other effects such as atmospheric oscillations which may also affect the key atmospheric variables of interest. Period lengths of 5 years were selected since this averages out to some extent the effect of shorter-term atmospheric fluctuations.

To assist in this selection, we created yearly spatial plots for the 5-year rolling average of the annual difference in mean leaf area index. We also created 5-year rolling average line plots for the climate indices corresponding to each region's relevant (i.e. climate-driving) atmospheric oscillations. From this, we selected a set of study periods for each region based on the following criteria (in order of priority):

1. 5-year rolling averages for relevant climate indices were similar
2. Change in leaf area index between the periods was extensive

3. Periods cover a similar amount of time spent in La Nina / El Nino (where relevant) and Negative / Positive Indian Ocean Dipole (where relevant)
4. Monthly values for relevant climate indices over each period display a similar time evolution pattern

We also selected a second set of study periods for each region, for which the 5-year averages of relevant climate indices had *dissimilar* values. The rationale behind this was that were some relationship to be identified in the analysis between *similar* periods, we could evaluate our confidence in that relationship by seeing whether it holds even under extreme differences in atmospheric conditions.

For each of these regions and study periods, we then created a series of spatial plots displaying summary statistics for the key atmospheric variables and the differences in these values between periods (other related variables which might affect the behaviour of the key variables were also studied).

Central to these summary statistics was a variable's "mean diurnal profile" over each period, produced using a group-wise average by hour of day for all the data values in that period. This was computed for each grid cell in the data, and was used to study how vegetation change might affect the diurnal variations in key variables. Because of the difficulty in visualising the temporal variability in spatial data, we created plots for the hour of maximum, hour of minimum, maximum, minimum, mean and range of these mean diurnal profile values. We also created spatial plots for the mean diurnal profile value at each hour of the day, to analyse contemporaneous diurnal evolution of different variables.

In addition to this, we created spatial plots for other distributional properties over each period (and the difference in these values between periods) such as the wind speed at 100 m above surface such as standard deviation, gross capacity factor for a typical wind turbine with 100 m hub height, empirical fits for the Weibull parameters, and the expected rate of exceeding 42.5 m/s (the typical speed which a turbine can withstand for 10 minutes).

Spatiotemporal correlations were identified by visual inspection as this was deemed more appropriate than a rigid statistic metric, since the latter will have to be computed upon gridded data and hence may miss spatial correlations between variables which are present but manifest slightly offset from each other by a few grid cells (and it is non-trivial to systematically correct for all the different spatial variations by which two variables can be slightly offset from each other).

3.2 | Focus regions

3.2.1 | Western Australia

We selected the south-west part of Western Australia (from 114°E to 124°E longitude and 36°S to 6°S latitude; SEE FIGURE) for investigation because previous studies have suggested significantly different atmospheric conditions on each side of the State Boundary Fence of Western Australia, which itself sharply delineates native vegetation (on the eastern side of the fence) from agricultural land (on the western side of the fence).

3.2.2 | Central America

3.2.3 | South America

3.3 | Study periods

3.3.1 | Annual difference in mean leaf area index

3.3.1.1 | Western Australia

3.3.1.2 | Central America

3.3.1.3 | South America

3.3.2 | Climate indices

3.4 | Variables analysed

3.5 | Statistical summaries

3.5.1 | Mean diurnal profile statistics

- mention time zones

1

3.5.2 | Mean diurnal profile values

¹These averages were produced mostly by computing the mean of monthly averaged by hour of day data, which is roughly equivalent to the mean of all hourly data values. Vector variables were computed using hourly data values. Reasons for these choices are discussed in Appendix C.

3.5.3 | Wind speed distribution

3.6 | Datasets

3.6.1 | ERA5 reanalysis data

On single levels, Reanalysis data for atmospheric parameters

3.6.2 | GLASS satellite-derived data

Long-term satellite-derived products for land surface variables

3.6.3 | NOAA climate indices

3.7 | Software

3.8 | Reproducibility

This section should include a recipe of what you did (explain what you have done so if someone wants to reproduce the experiment, they can). A flow chart is typically helpful. Also, make sure to define all software that you used including version numbers and OS. Should also include a description of statistical methods used (if any).²

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Summary

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like

²For more information see: <http://rc.rcjournal.com/content/49/10/1229.short>

“Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Results

4.1 | Western Australia

4.2 | Central America

4.3 | South America

Should include a reiteration of the experiments, and their outcome. Together with a description (discussion). Preamble should include a reminder of the aims and objectives together with a list of experiments to achieve these. Should include many charts and other visualization with appropriate descriptions.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

This is the second paragraph. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

And after the second paragraph follows the third paragraph. Hello, here is some

text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

After this fourth paragraph, we start a new paragraph sequence. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

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Summary

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Discussion

5.1 | Interpretation of results

5.2 | Comparison with literature

5.3 | Significance

5.4 | Limitations and possible improvements

5.5 | Future directions for research

In an ideal world, you should have two kind of evaluations. The first is against some ground truth (perhaps a random model?). The second kind of evaluation is against other people's work (accuracy, speed, etc.). Any dimension which is of interest, should be evaluated. Evaluation should be statistically sound.

This is the second paragraph. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

And after the second paragraph follows the third paragraph. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift

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Summary

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Conclusions

This section should have a summary of the whole project. The original aims and objective and whether these have been met should be discussed. It should include a section with a critique and a list of limitations of your proposed solutions. Future work should be described, and this should not be marginal or silly (e.g. add machine learning models). It is always good to end on a positive note (i.e. 'Final Remarks').

Revisiting the Aims and Objectives

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Critique and Limitations

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Future Work

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Final Remarks

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Supplementary information and graphs

A.1 | Comparison of leaf area index datasets

If the dissertation has a DVD or pendrive attached to it, you will need a section which explains what is on the media (structure, files, data, etc.). This could be a table with filename and description.

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Data, files and codebooks

B.1 | Availability and reproducible results

B.2 | Description of analysis functions

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[illegible]

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Commutativity of statistical computations

And after the second paragraph follows the third paragraph. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

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