The effect of land cover change on surface wind resource

and its implications for wind energy generation

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

1

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

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.

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.

2

Literature Review

2.1 | Overview

2.2 | Methodologies for analysing the effect of land cover change

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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).

$$e^{i\pi} + 1 = 0 \tag{2.1}$$

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.

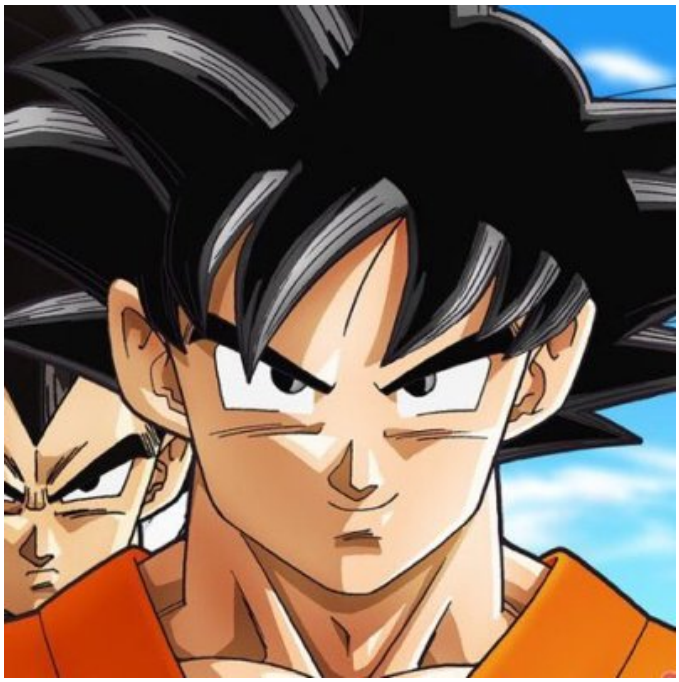


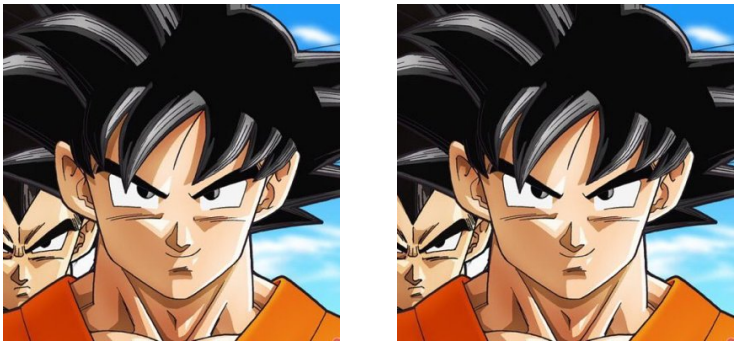
Figure 2.1: A test figure. This caption is huge, but in the list of figures only the smaller version in the square brackets will appear.

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.



(a) Goku (b) More Goku

Figure 2.2: The same super saiyan. Two times.

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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 Ligity in HTS mode against the Ligity-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 Actives**	**No. of Decoys**	**ROC AUC Tanimoto**	**ROC AUC Tversky**	**BEDROC Tanimoto**	**BEDROC Tversky**	**$EF_{1\%}$ Tanimoto**	**$EF_{1\%}$ 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 Actives	No. of Decoys	ROC AUC Tanimoto	ROC AUC Tversky	BEDROC Tanimoto	BEDROC Tversky	$EF_{1\%}$ Tanimoto	$EF_{1\%}$ Tversky
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 Actives	No. of Decoys	ROC AUC Tanimoto	ROC AUC Tversky	BEDROC Tanimoto	BEDROC Tversky	$EF_{1\%}$ Tanimoto	$EF_{1\%}$ Tversky
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

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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. □

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.

```
import numpy as np

def incmatrix(genl1,genl2):
  m = len(genl1)
  n = len(genl2)
  M = None #to become the incidence matrix
  VT = np.zeros((n*m,1), int)  #dummy variable

  #compute the bitwise xor matrix
  M1 = bitxormatrix(genl1)
  M2 = np.triu(bitxormatrix(genl2),1)

```

```
  for i in range(m-1):
    for j in range(i+1, m):
      [r,c] = np.where(M2 == M1[i,j])
      for k in range(len(r)):
        VT[(i)*n + r[k]] = 1;
        VT[(i)*n + c[k]] = 1;
        VT[(j)*n + r[k]] = 1;
        VT[(j)*n + c[k]] = 1;

        if M is None:
          M = np.copy(VT)
        else:
          M = np.concatenate((M, VT), 1)

        VT = np.zeros((n*m,1), int)

  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 ≥ 0
Result: y = x^n
y ← 1;
X ← x;
N ← n;
while N ≠ 0 do
    if N is even then
        X ← X × X;
        N ← N/2 ;                          /* This is a comment */
    else
        if N is odd then
            y ← y × X;
            N ← 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 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

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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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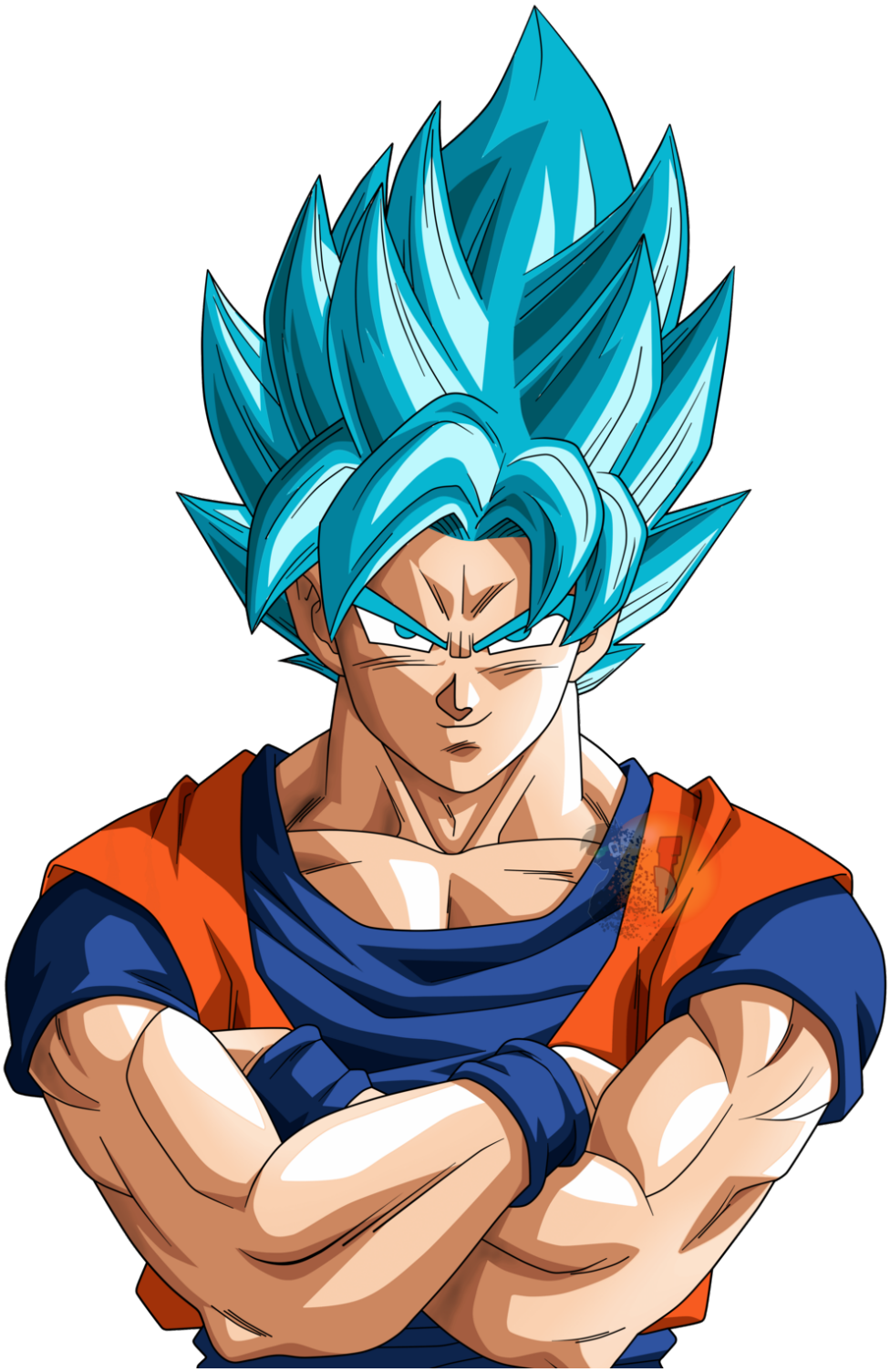

Figure 2.3: Page numbers are suppressed on this page.

3

Methodology

3.1 | Approach

The general approach that's been applied here is to use modelled outputs (derived from empirical data) to identify spatiotemporal correlations between vegetation change and atmospheric variables. The rationale for this is that although it is often difficult to identify whether a (semi-)empirical observation is the result of some physical mechanism(s) or just a chance occurrence, where a relationship holds tightly through space and/or time the latter is much less likely to be the case. Therefore, if a spatiotemporal correlation between two (or more) variables can be identified, it is suggestive that there is some underlying relationship which is not due to chance, especially if the correlation is very strong (for example, if the spatial distribution of some variable has a very particular shape yet coincides almost exactly with the spatial distribution of another variable). Furthermore, we would have even greater confidence that an identified pattern represents a non-spurious relationship if such a pattern were present in data across various disparate regions.

Even if such a suggestive relationship can be identified, the question still remains regarding whether there is a causal relationship (direct or indirect) between the variables, or whether there are confounding factors with the effect of producing the identified relationship. In the context of science, the question of causation can only be raised sensibly relative to a theoretical framework, which in turn must be at least internally consistent and congruent with rigidly established scientific frameworks (such as the laws of physics) - unless there is extraordinary evidence to reject the latter. Evidence of a causal relationship between empirical variables is then equivalent to there being a logically sound (or at least plausible) explanation within that theoretical framework as to why the identified relationship holds, and for which there exists empirical data supporting the proposed explanation.

Where there are multiple such frameworks and discussion of results crosses over multiple frameworks, the "causes" of something should be specified along with the

framework which the "causes" are relative to so as to avoid confusion. If there is an insistence upon using only a single framework, the choice is a matter of judgement but historically (Kuhn, 1970), selecting a framework *for general use* has been weighted upon criteria such as:

1. Accurate: "demonstrated agreement with the results of existing experiments and observations" (Kuhn, 1977)

2. Consistent: "not only internally or with itself, but also with other currently accepted theories applicable to related aspects of nature" (Kuhn, 1977)

3. Broad Scope: "consequences should extend far beyond the particular observations, laws or subtheories it was initially designed to explain" (Kuhn, 1977)

4. Simple: "bringing order to phenomena that in its absence would be individually isolated and, as a set, confused" (Kuhn, 1977)

5. Fruitful: "disclose new phenomena or previously unnoted relationships among those already known" (Kuhn, 1977)

(Select framework to analyse a particular problem)

(Mention how this will be relevant as this study area is still not well understood and there are various proposed frameworks)

(Explain choice to plot main statistics of MDP since this is the easiest way to visualise diurnal profiles, but mention plotting by hourly values is also possible)

(Explain 5-year rolling avg of climate indices)

(Explain use of study regions)

To identify how vegetation loss may affect (or has historically affected) surface winds, we produced a series of spatial plots using ERA5 reanalysis data which seek 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 yields results either due to historically extensive degrees of vegetation change or other unique circumstances. For each of these regions, we then strategically selected two 5-year 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 fluctuations.

To assist in this selection, yearly spatial plots for the 5-year rolling average of the annual difference in mean leaf area index were created. Climate indices for each region's relevant (i.e. climate-driving) atmospheric oscillations were also obtained, and the 5-year rolling averages for these were plotted. The periods were selected 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. Monthly values for relevant climate indices over each period display a similar pattern

3.1.1 | Focus regions

3.1.1.1 | Central America

3.1.1.2 | South America

3.1.1.3 | Western Australia

3.1.2 | Statistical metrics

3.1.2.1 | Mean diurnal profile climatology

3.1.2.2 | Weibull parameters

3.2 | Reproducibility

3.3 | Datasets

3.3.1 | Reanalysis data for atmospheric variables

3.3.2 | Long-term satellite-derived products for land surface variables

3.4 | Software

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).[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.

Summary

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[1] For more information see: `http://rc.rcjournal.com/content/49/10/1229.short`

4

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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5

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.

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– 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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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.

6

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

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.

Future Work

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.

Final Remarks

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

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.

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

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B

Data, files and codebooks

B.1 | Availability and reproducible results

B.2 | Description of analysis functions

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C

User Manual

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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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

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