

# Curriculum Vitae

## Ivan C. Hanigan Ph.D

### Information

- I live in Canberra, Australia
- Email: [ivan.hanigan@canberra.edu.au](mailto:ivan.hanigan@canberra.edu.au)
- ORCID: <http://orcid.org/0000-0002-6360-6793>
- Google Scholar: <https://scholar.google.com/citations?user=cGN1P0wAAAAJ&hl=en>
- Phone: +61 428 265 976
- Blog: <http://ivanhanigan.github.com>

### Biography

I am a multidisciplinary data manager and analyst with over 15 years experience at seven Australian universities and the CSIRO, especially the ANU. I am currently a Data Scientist at the University of Canberra Health Research Institute. I recently completed my PhD at the ANU National Centre for Epidemiology and Population Health. Until 2013 I worked closely with Tony McMichael's Climate Change and Health program at ANU. In 2014/15 I led the development of the data portal for the Long Term Ecological Research Network. I work on data analysis that disentangles health effects of environmental changes from social factors. I give special attention to issues of data management, security, privacy and ethics for my research.

I have primarily worked in environmental epidemiology, building on the approaches from human ecology and geography at ANU. My PhD research focused on reproducible research pipelines, heterogeneous datasets and statistical modelling of exposure-response associations in the context of complex multifactorial causality. My studies include phenomena such as the effects of air pollution from bushfires on heart disease, and droughts on mental health. I explored the areas of differential vulnerability across sub-populations, precision of spatio-temporal exposure estimates and general issues of geospatial data analysis methods.

I have been both lead author and contributing author on 23 peer-reviewed journal papers. I have contributed to 7 reports and 16 conference presentations. My Scopus h-index is 12 and my Field-Weighted Citation Impact is 2.04. My contributions have spanned the range from designing study protocols, creating datasets, conducting analyses and communicating results. The integration of gridded, point-source and area-based administrative data has become a specialty. In particular I have experience in the integration of health, social and environmental data which involves reconciling health and socio-economic or population data based on incompatible spatial units. I also am adept at the creation of linked environmental exposure maps and computer programming. Alongside my experience in analysis of empirical data I have experience in scenario-based forecasting in climate change risk assessments.

### Appointments

#### University of Canberra

2016--Present. Research Fellow Data Scientist, Centre for Research and Action in Public Health.

#### University of Sydney

2015--Present. Data Manager/Analyst, University Centre of Rural Health.

#### University of Queensland

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2015 (May-June). Senior Scientific Workflow Developer, Terrestrial Ecosystem Research Network.

### **Australian National University**

2013--2015. Data Portal Project Manager and Analyst, Fenner School of Environment and Society. Long-Term Ecosystem Research Network and Australian Supersite Network. 2008--2013. Data Manager/Analyst, National Centre for Epidemiology and Population Health (NCEPH). 2001--2005, 2008--2009. Data Analyst, Climate and Health (NCEPH).

### **CSIRO Adaptive Primary Industries**

2013. Part-time data analysis projects investigating transformational adaptation in Energy and Farming.

### **James Cook University**

2013-- 2015. Part-time Research Data Scientist assisting the Terrestrial Ecosystem Research

Network's Australian Supersite Network online data portal and Analytical software developments.

### **University of Tasmania**

2008--2011. Data Manager and Analyst, Bushfire Smoke, Heatwaves and Health Project,

School of Plant Science.

### **Charles Darwin University**

2006--2007. Data Manager and Analyst, Bushfire Smoke and Health Project, School of Environmental Research.

## Education

### **Australian National University**

2009--2016: Part-time PhD entitled *Using Reproducible Research Pipelines to Help Disentangle Health Effects of Environmental Change from Social Factors*, <http://hdl.handle.net/1885/108735>. ANU (NCEPH) and CSIRO. Panel: Colin Butler, Philip Kocic, Rohan Nelson, Steven McEachern, Kathryn Glass.

1998-2005: Bachelor of Arts in Geography and Human Ecology, First Class Honours in Environmental Epidemiology, School of Resources, Environment and Society. ANU.

## Papers

Citation numbers were retrieved from google scholar on 15-Jul-2015 . Journal Impact Factors were accessed in July 2015.

ID	Title	Cited	Journal Impact Factor
A23	Guru, S., <b>Hanigan</b> , I. C., Nguyen, H. A., Burns, E., Stein, J., Blanchard, W., Lindenmayer, D. & Clancy, T. (2016). Development of a cloud-based platform for reproducible science: A case study of an IUCN Red List of Ecosystems Assessment. <i>Ecological Informatics</i> <a href="https://doi.org/10.1016/j.ecoinf.2016.08.003">doi:10.1016/j.ecoinf.2016.08.003</a>	0	2.30
A22	Powers, J. R., Dobson, A. J., Berry, H. L., Graves, A. M., <b>Hanigan</b> , I. C., & Loxton, D. (2015). Lack of association between drought and mental	0	1.98

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ID	Title	Cited	Journal Impact Factor
	health in a cohort of 45-61 year old rural Australian women. Australian and New Zealand Journal of Public Health. <a href="https://doi.org/10.1111/1753-6405.12369">doi:10.1111/1753-6405.12369</a>		
A21	Lindenmayer, D.B., Burns, E.L., Tennant, P., Dickman, C.R., Green, P.T., Keith, D., Metcalfe, D.J., Russell-smith, J., Wardle, G.M., Williams, D., Bossard, K., Delacey, C., <b>Hanigan</b> , I., Bull, C.M., Gillespie, G., Hobbs, R.J., Krebs, C.J., Likens, G.E., Porter, J., & Vardon, M. (2015). Contemplating the future : Acting now on long-term monitoring to answer 2050's questions. Austral Ecology, 1-12. <a href="https://doi.org/10.1111/aec.12207">doi:10.1111/aec.12207</a>	0	1.84
A20	O'Brien, L. V., Berry, H. L., Coleman, C., & <b>Hanigan</b> , I. C. (2014). Drought as a mental health exposure. Environmental Research, 131, 181-187. <a href="https://doi.org/10.1016/j.envres.2014.03.014">doi:10.1016/j.envres.2014.03.014</a>	13	4.37
A19	Howden, M., Schroeter, S., Crimp, S., & <b>Hanigan</b> , I. (2014). The changing roles of science in managing Australian droughts: An agricultural perspective. Weather and Climate Extremes, 3, 80-89. <a href="https://doi.org/10.1016/j.wace.2014.04.006">doi:10.1016/j.wace.2014.04.006</a>	1	NA
A18	Martin, K. L., <b>Hanigan</b> , I. C., Morgan, G. G., Henderson, S. B., & Johnston, F. H. (2013). Air pollution from bushfires and their association with hospital admissions in Sydney, Newcastle and Wollongong, Australia 1994-2007. Australian and New Zealand Journal of Public Health, 37(3), 238-243. <a href="https://doi.org/10.1111/1753-6405.12065">doi:10.1111/1753-6405.12065</a>	12	1.98
A17	Johnston, F.H., <b>Hanigan</b> , I.C., Henderson, S.B. & Morgan, G.G. (2013). Evaluation of interventions to reduce air pollution from biomass smoke on mortality in Launceston, Australia: retrospective analysis of daily mortality, 1994-2007. BMJ, 346, e8446. <a href="https://doi.org/10.1136/bmj.e8446">doi:10.1136/bmj.e8446</a>	26	17.45
A16	Wilson, L. A., Morgan, G., <b>Hanigan</b> , I. C., Johnston, F., Abu-Rayya, H., Broome, R., Gaskin, C., & Jalaludin, B. (2013). The impact of heat on mortality and morbidity in the Greater Metropolitan Sydney Region: a case crossover analysis. Environmental Health : A Global Access Science Source, 12(1), 98. <a href="https://doi.org/10.1186/1476-069X-12-98">doi:10.1186/1476-069X-12-98</a>	6	3.37
A15	Vally, H., Peel, M., Dowse, G. K., Cameron, S., Codde, J. P., <b>Hanigan</b> , I., & Lindsay, M. D. A. (2012). Geographic information systems used to describe the link between the risk of Ross River virus infection and proximity to the Leschenault Estuary, WA. Australian and New Zealand Journal of Public Health, 36(3), 229-235. <a href="https://doi.org/10.1111/j.1753-6405.2012.00869.x">doi:10.1111/j.1753-6405.2012.00869.x</a>	0	1.98
A14	<b>Hanigan</b> , I.C., Butler, C.D., Kokic, P.N. & Hutchinson, M.F. (2012). Suicide and drought in New South Wales, Australia, 1970-2007. <i>Proceedings of the National Academy of Sciences of the United</i>	36	9.67

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## Ivan C. Hanigan Ph.D

ID	Title	Cited	Journal Impact Factor
	<i>States of America</i> , 109, 13950-5. <a href="https://doi.org/10.1073/pnas.1112965109">doi:10.1073/pnas.1112965109</a>		
A13	Johnston, F.J., <b>Hanigan</b> , I.C., Henderson, S.B., Morgan, G.G, & Bowman, D.M.J.S. 2011. "Extreme Air Pollution Events from Bushfires and Dust Storms and Their Association with Mortality in Sydney, Australia 1994-2007." <i>Environmental Research</i> 111 (6): 811-16.	68	4.37
A12	Johnston, F., <b>Hanigan</b> , I., Henderson, S., Morgan, G., Portner, T., Williamson, G., & Bowman, D. (2011). Creating an integrated historical record of extreme particulate air pollution events in Australian cities from 1994 to 2007. <i>Journal of the Air Waste Management Association</i> 1995, 61(4), 390-398. <a href="https://doi.org/10.3155/1047-3289.61.4.390">doi:10.3155/1047-3289.61.4.390</a>	13	1.34
A11	Hall, G. V, <b>Hanigan</b> , I. C., Dear, K. B. G., & Vally, H. (2011). The influence of weather on community gastroenteritis in Australia. <i>Epidemiology and Infection</i> , 139(6), 927-936. <a href="https://doi.org/10.1017/S0950268810001901">doi:10.1017/S0950268810001901</a>	8	2.54
A10	Edwards, F., Dixon, J., Friel, S., Hall, G., Larsen, K., Lockie, S., Wood, B., Lawrence, M., <b>Hanigan</b> , I., Hogan, A. & Hattersley, L. (2011). Climate change adaptation at the intersection of food and health. <i>Asia-Pacific Journal of Public Health</i> 23(2 Suppl), 91S-104. <a href="https://doi.org/10.1177/1010539510392361">doi:10.1177/1010539510392361</a>	23	1.46
A9	Johnston, F. H., <b>Hanigan</b> , I. C., & Bowman, D. M. J. S. (2009). Pollen loads and allergic rhinitis in Darwin, Australia: A potential health outcome of the grass-fire cycle. <i>EcoHealth</i> , 6(1), 99-108. <a href="https://doi.org/10.1007/s10393-009-0225-1">doi:10.1007/s10393-009-0225-1</a>	17	2.45
A8	Bambrick, H. J., Woodruff, R. E., & <b>Hanigan</b> , I. C. (2009). Climate change could threaten blood supply by altering the distribution of vector-borne disease: an Australian case-study. <i>Global Health Action</i> .	7	1.93
A7	<b>Hanigan</b> , I. C., Johnston, F. H., & Morgan, G. G. (2008). Vegetation fire smoke, indigenous status and cardio-respiratory hospital admissions in Darwin, Australia, 1996-2005: a time-series study. <i>Environmental Health : A Global Access Science Source</i> , 7, 42. <a href="https://doi.org/10.1186/1476-069X-7-42">doi:10.1186/1476-069X-7-42</a>	32	3.37
A6	<b>Hanigan</b> , I. C., & Johnston, F. H. (2007). Respiratory hospital admissions were associated with ambient airborne pollen in Darwin, Australia, 2004-2005. <i>Clinical and Experimental Allergy</i> , 37(10), 1556-1565. <a href="https://doi.org/10.1111/j.1365-2222.2007.02800.x">doi:10.1111/j.1365-2222.2007.02800.x</a>	23	4.77
A5	D'Souza, R. M., Bambrick, H. J., Kjellstrom, T. E., Kelsall, L. M., Guest, C. S., & <b>Hanigan</b> , I. (2007). Seasonal variation in acute hospital admissions and emergency room presentations among children in the Australian Capital Territory. <i>Journal of Paediatrics and Child Health</i> ,	0	1.15

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	43(5), 359–365. <a href="https://doi.org/10.1111/j.1440-1754.2007.01080.x">doi:10.1111/j.1440-1754.2007.01080.x</a>		
A4	Johnston, F. H., Bailie, R. S., Pilotto, L. S., & <b>Hanigan</b> , I. C. (2007). Ambient biomass smoke and cardio-respiratory hospital admissions in Darwin, Australia. <i>BMC Public Health</i> , 7(1), 240. <a href="https://doi.org/10.1186/1471-2458-7-240">doi:10.1186/1471-2458-7-240</a>	71	2.26
A3	<b>Hanigan</b> , I., Hall, G., & Dear, K. B. G. (2006). A comparison of methods for calculating population exposure estimates of daily weather for health research. <i>International Journal of Health Geographics</i> , 5(1), 38. <a href="https://doi.org/10.1186/1476-072X-5-38">doi:10.1186/1476-072X-5-38</a>	26	2.45
A2	Nicholls, N., Butler, C. D., & <b>Hanigan</b> , I. (2006). Inter-annual rainfall variations and suicide in New South Wales, Australia, 1964-2001. <i>International Journal of Biometeorology</i> , 50(3), 139–143. <a href="https://doi.org/10.1007/s00484-005-0002-y">doi:10.1007/s00484-005-0002-y</a>	55	3.25
A1	Dear, K., Ranmuthugala, G., Kjellström, T., Skinner, C., & <b>Hanigan</b> , I. (2006). Effects of temperature and ozone on daily mortality during the August 2003 heat wave in France. <i>Archives of Environmental &amp; Occupational Health</i> , 60(4), 205–212. <a href="https://doi.org/10.3200/AEOH.60.4.205-212">doi:10.3200/AEOH.60.4.205-212</a>	48	0.93

## Reports

ID	Title	Cited
B7	Mazumdar S, Learnihan V, Cochrane T, Hanigan I, Davey R. (2016). Influence of neighbourhood on the burden of non-communicable-diseases in the Australian Capital Territory. Health Research Institute working paper. University of Canberra. <a href="http://www.canberra.edu.au/research/institutes/health-research-institute/annual-reports/reports/Influence-of-Neighbourhood-on-the-Burden-of-Non-Communicable-Diseasws-in-the-Australian-Capital-Territory.pdf">http://www.canberra.edu.au/research/institutes/health-research-institute/annual-reports/reports/Influence-of-Neighbourhood-on-the-Burden-of-Non-Communicable-Diseasws-in-the-Australian-Capital-Territory.pdf</a>	0
B6	Burns, E.L., Lindenmayer, D., Tennant, P., Dickman, C., Green, P., <b>Hanigan</b> , I., Hoffmann, A., Keith, D., Metcalfe, D., Nolan, K., Russell-Smith, J., Wardle, G., Welsh, A., Williams, R. & Yates, C. (2014). Making ecological monitoring successful. Long Term Ecological Research Network, Australian National University, Canberra, Australia.	0
B5	McMichael, A., Berry, H., Butler, C., Capon, A., Dear, K., <b>Hanigan</b> , I., Lucas, R. & Strazdins, L. (2008). Assessing the scale and nature of health vulnerability to climate change. Technical report for WHO global consultation on ‘Guiding research to improve health protection from climate change’. World Health Organisation, Geneva. (D. Campbell-Lendrum & R. Bertollini, Eds.).	1
B4	Berry, H.L., Kelly, B.J., <b>Hanigan</b> , I.C., Coates, J., McMichael, A.J., Welsh, J. & Kjellström, T. (2008). Rural mental health impacts of climate change. Garnaut	49

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ID	Title	Cited
	Climate Change Review, Canberra	
B3	Bambrick, H., Dear, K., Woodruff, R., <b>Hanigan</b> , I. & McMichael, A. (2008). Garnaut Climate Change Review. The impacts of climate change on three health outcomes: temperature-related mortality and hospitalisations, salmonellosis and other bacterial gastroenteritis, and population at risk from dengue. Garnaut Climate Change Review, Canberra.	60
B2	<b>Hanigan</b> , I. C. (2003). Hotspots of Pathogens in Drinking Water Catchments: Case Study of Googong Catchment. Canberra, Australia.	0
B1	D'Souza, R., Hennessy, K., Cope, M., McMichael, A., Page, C., Whetton, P., Physick, B. & <b>Hanigan</b> , I. (2003). A scoping study of the impact of climate change on air pollution over Sydney. Consultancy for NSW Environmental Protection Agency, Sydney, Australia.	0

## Conference Presentations

ID	Title	Cited
C17	Hanigan, I., Porfirio, L., Hutchinson, M. (Poster) Combining Climate Index With Drought Declarations To Create A Definition Of Drought For Human Wellbeing Research. One Health and International Association for Ecology and Health joint congress, Melbourne 3rd-7th Dec 2016	
C16	Hanigan, I., Learnihan, V., Mazumdar, M., Cochrane, T., Davey, R., Phung, H., O'Connor, B., Yu, Y., Bagheri, N. Associations of hospitalisation for cardiovascular disease with neighbourhood walkability and food locations in Canberra, Australia, 2007-2013. Institute of Australian Geographers (IAG) conference Adelaide 29 <sup>th</sup> June 2016.	
C15	Hanigan, I., Morgan, G., Williamson, G., <i>et al.</i> Blending data with different levels of uncertainty for pollution exposure estimates in Sydney and Perth, Australia. Centre for Air quality and health Research evaluation (CAR) Symposium, Sydney, 5th of May, 2016	
C14	Guru, S., Blanchard, W., <b>Hanigan</b> , I., Burns, E., Stein, J., Lindenmayer, D. & Clancy, T. (2015). A Scientific Workflow to apply an IUCN Red List Ecosystem Assessment of Mountain Ash Forest. 2015 Ecological Society of Australia Annual Conference. Adelaide, South Australia. 29 November, 2015.	
C13	Viennet, E., Dear, K., Faddy, H., <b>Hanigan</b> , I., McMichael, A., Ritchie, S., Williams, C. & Harley, D. (2014). Dengue Transmission in a High-Income Country: Descriptive and Spatio-Temporal Analysis. 9th insitut pasteur conference: Emerging infectious diseases.	
C12	Butler, C. D., Turner, G. M., <b>Hanigan</b> , I. C., & Bowles, D. C. (2013). Climate change adaptation: a mirage that threatens to trap us in dry sand. In Greenhouse 2013, The	

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- | ID  | Title  |
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|     | science of climate change. Adelaide, South Australia. 9 October, 2013.   |
| C11 | Johnston, F., <b>Hanigan</b> , I. C., Henderson, S. B., & Morgan, G. G. (2013). Biomass Smoke Pollution And Mortality Rates In Launceston, Australia, 1994-2007: Evaluation Of Coordinated Interventions To Improve Ambient Air Quality. In The joint ISEE, ISES and ISIAQ Environmental Health Conference (19-23 August 2013). Basel, Switzerland.  |
| C10 | <b>Hanigan</b> , I., Fisher, D., & Mceachern, S. (2013). Open Software - Restricted Data : A Suicide / Climate Case Study . In National Climate Change Adaptation Research Facility Conference "Climate Adaptation knowledge and partnership". June 2013, Sydney. (pp. 1-8).   |
| C9  | Bambrick, H., Woodruff, R., & <b>Hanigan</b> , I. (2011). P2-364 Climate change threatens blood supply through altering the distribution of vector-borne disease: an Australian Case-Study. <i>Journal of Epidemiology &amp; Community Health</i> , 65(Suppl 1), A323-A323. <a href="https://doi.org/10.1136/jech.2011.142976k.95">doi:10.1136/jech.2011.142976k.95</a>  |
| C8  | Johnston, F., <b>Hanigan</b> , I., Henderson, S., Morgan, G., & Bowman, D. (2011). The association between mortality and air pollution events from bushfires and dust storms in Sydney, 1994-2007. In Royal College of Physicians Annual Scientific Meeting. Darwin.   |
| C7  | Johnston, F. H., <b>Hanigan</b> , I. C., Henderson, S. B., Morgan, G. G., & Bowman, D. M. J. S. (2011). Preliminary Results From the Australian Landscape Fire Smoke Project. Abstracts: ISEE 22nd Annual Conference, Seoul, Korea, 28 August-1 September 2010: Outdoor Air Pollution From Residential Wood Combustion and Associated Health Effects. <i>Epidemiology</i> , 22(1), S186 <a href="https://doi.org/10.1097/01.ede.0000392251.52154.6f">doi:10.1097/01.ede.0000392251.52154.6f</a>                      |
| C6  | Bambrick, H., Dear, K., & <b>Hanigan</b> , I. (2009). Deaths in a sunburnt country: Differential mortality responses to temperatures in 'hot' country. In IOP Conference Series.   |
| C5  | Banwell, C., Dixon, J., Bambrick, H., Hinde, S., Kjellstrom, T., Lucas, R., & <b>Hanigan</b> , I. C. (2009). Socio-cultural reflections on comfort and heat in Australia with implications for climate change adaption. In <i>Climate Change: Global Risks, Challenges and Decisions</i> . IOP Conf. Series: Earth and Environmental Science (Vol. 6, p. 572023). <a href="https://doi.org/10.1088/1755-1307/6/7/572023">doi:10.1088/1755-1307/6/7/572023</a>  |
| C4  | <b>Hanigan</b> , I., Johnston, F., Morgan, G., Dingle, J., & Bowman, D. (2008). Assessing the Relationship Between Exposure to Vegetation Fire Smoke and Hospital Admissions when Empirical Air Quality Measurements are Limited: Darwin, Australia, 1996-2005. In <i>Epidemiology: 2008</i> , Vol 19 Issue 6 - pp S266-S267. Abstracts from the Joint Annual Conference of the International Society for Environmental Epidemiology and International Society of Exposure Analysis. Pasadena, California, Oct 2008. |
| C3  | D'Souza, R., Hall, G., Becker, N., Vally, H., & <b>Hanigan</b> , I. (2006). Effect of Ambient Temperature and Age on Salmonella Notifications in Australia. In <i>Epidemiology</i> .   |
| C2  | D'Souza, R. M., Becker, N. G., Kjellstrom, T., Bambrick, H., Woodruff, R., Kelsall, L., <b>Hanigan</b> , I. & Guest, C. (2005). Influence of Climatic Factors on Hospitalisations and Emergency Room Presentations for Asthma and Other (Non-Asthma) Respiratory   |



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ID Title

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Conditions in Children. In Epidemiology (Vol. 16, p. S50). [doi:10.1097/00001648-200509000-00116](https://doi.org/10.1097/00001648-200509000-00116)

C1 D'Souza, R. M., Becker, N. G., Hall, G., Kjellstrom, T., Bambrick, H., Kelsall, L., **Hanigan**, I & Guest, C. (2005). Climatic Factors Associated With Hospitalisations and Emergency Room Presentations for Diarrhoea in Children. In Epidemiology (Vol. 16, p. S60).

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## Policy Briefs

ID Title

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D1 Bambrick, H., Woodruff, R., & **Hanigan**, I. (2010). Effective emissions targets needed to protect Australia's blood supply. The Australia Institute Policy Brief No. 11.

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## Data and Code Packages

ID Title

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E7 **Hanigan**, I.C., Guillaume, J., Markham, F., Williamson, G., Szarka, I., Hanson, J. O. (2016) AWAPTOOLS: Software to download and reformat Australian Water Availability Grids from BoM/CSIRO. <https://github.com/swish-climate-impact-assessment/awaptools>

E6 **Hanigan**, I. C. (2015). Woodland Restoration Plot Network: Climatic Drought Index Data, Western Sydney Parklands (Western Sydney Regional Park), Australia, 1887 - 2014. Long Term Ecological Research Network. <http://www.ltern.org.au/knb/metacat/ltern2.205/html>

E5 **Hanigan**, I. (2013). Weather Exposures by Statistical Local Area (SLA) 2001 edition. Retrieved from <https://datacommons.anu.edu.au:8443/DataCommons/item/anudc:5027>

E4 **Hanigan**, I. (2012). Monthly drought data for Australia 1890-2008 using the Hutchinson Drought Index. The Australian National University Australian Data Archive. [doi:10.4225/13/50BBFD7E6727A](https://doi.org/10.4225/13/50BBFD7E6727A)

E3 **Hanigan**, I. (2010). Meteorological Data for Australian Postal Areas. Australian Data Archive. [doi:10.4225/13/50BBFCFE08A12](https://doi.org/10.4225/13/50BBFCFE08A12)

E2 **Hanigan**, I. (2010). Map of Bureau of Meteorology monitoring stations in NSW overlaid on Postal Area. Australian Data Archive. [doi:10.4225/13/50BBF2A907951](https://doi.org/10.4225/13/50BBF2A907951)

E1 **Hanigan**, I. C. (2010). New South Wales population data grouped into 15 climatic areas, 2001. Australian Data Archive. [doi:10.4225/13/50BBFCADCF6F0](https://doi.org/10.4225/13/50BBFCADCF6F0)

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## Media

- Salleh, A., Suicide in rural men linked to drought, ABC News in Science, Tuesday, 14 August 2012, <http://www.abc.net.au/science/articles/2012/08/14/3567208.htm>
- Lee, J.J., Drought May Increase Suicide Risk , LiveScience, August 13, 2012 <http://www.livescience.com/22314-drought-may-increase-suicide-risk.html>



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- Die Welt, Heißes und extremes Wetter erhöht die Suizidrate, <http://www.welt.de/gesundheit/psychologie/article111328359/Heisses-und-extremes-Wetter-erhoeht-die-Suizidrate.html>
- Meet the Researcher, June-July 2012 edition of the National Climate Change Adaptation Research Network Human Health Newsletter.

## Peer Reviewing

- Willocks LJ, et al. (2012). Cardiovascular disease and air pollution in Scotland: no association or insufficient data and study design? BMC Public Health, 12(1), 227. [doi:10.1186/1471-2458-12-227](https://doi.org/10.1186/1471-2458-12-227) (nonblind review).
- BMC Public Health, 2012 - (blind review - advised rejection).
- Crisis: The Journal of Crisis Intervention and Suicide Prevention, 2012 (blind review - advised rejection).
- Australian and New Zealand Journal of Public Health, 2013 (blind review - advised rejection).
- International Journal of Environmental Research and Public Health, 2015 (blind review - accepted).
- Australian Institute of Health and Welfare, 2016 (confidential review of draft report).

## Programming expertise

- I have extensive skills with the R language for statistical computing and graphics.
- I contribute to several R packages and open source code project sites via my GitHub pages (<https://github.com/ivanhanigan>).
- I also have experience with Statistical tools in Splus, Stata, Kepler-project and SPSS.
- I am adept at generic programming and configuring Postgres, PostGIS, Geoserver, QGIS, ArcGIS, Oracle-XE, Linux (Ubuntu, Centos, RHEL).

## People management and project management

- In the LTERN data portal project I directly supervised 3 staff for 2 years.
- I was the project manager responsible for the project scoping, implementation plan, and monitoring and evaluation plan.

## Technical courses

- rOpenSci unconference in Australia held on Thursday and Friday (April 21-22, 2016). Brisbane.
- Satellite Data for Air Pollution Exposure Assessment, Centre for Air Quality and Health Research, 24th September 2015, Woolcock Institute.
- Secure Unified Research Environment Certification, 10 June 2015. Sax Institute, Sydney NSW.
- Optimize and Tune Your PostgreSQL Database Server Performance, 13 Mar 2013. EnterpriseDB <http://www.enterprisedb.com>.

# Curriculum Vitae

## Ivan C. Hanigan Ph.D

- Computing for Data Analysis, 24 Sep - 27 Oct 2012. Prof Roger Peng Johns Hopkins Bloomberg School of Public Health, Coursera.
- Bayesian Hierarchical Modelling of Spatial and Temporal Data, 21-23 November 2011, CSIRO/ANU, Canberra, ACT.
- Statistical Data and Metadata eXchange (SDMX) standard and tools. 24 March 2010, Australian Bureau of Statistics.
- Australian Weather and Society Integrated Studies Workshop. 29th - 2nd February 2007. Emergency Management Australia, Mount Macedon, VIC.
- Spatial Analysis in Environmental and Social Epidemiology. 5th - 8th September 2005. The Australian National University, Canberra.
- Formatting long documents in Microsoft Word, 2004, The Australian National University Information Literacy.
- Endnote Referencing Software training, 2004, The Australian National University Information Literacy.
- Air Pollution Exposure: measurement, modelling and assessment. 2nd - 3rd December 2004, The Australian National University, Canberra.
- Climate Change and Health: Research Methods and Policy Issues. 29th September - 2nd October 2003, The Australian National University, Canberra.

## Contribution to Teaching and Learning

- I gave presentations on data publishing for the Australian National Data Service 23 (research data) Things 27<sup>th</sup> June and September 6<sup>th</sup> 2016 (<https://www.youtube.com/watch?v=V5MwUEoCQP0>).
- I gave a workshop on multilevel data analysis for the ACT Health Department May 25<sup>th</sup> 2016.
- Marking masters of environmental health assignments, University of Sydney, Semester 2 2015.
- I give occasional guest lectures in spatial epidemiology to geography students at ANU.
- I have sat on several selection panels for job interviews both at a number of Centres at the ANU.
- I gave training in programming, data analysis and data management for staff and students at ANU.
- I was one of the founding members of the ANU GIS Forum in 2009.
- I contributed to ANU wide data management meetings with the Australian Data Archives and the National Supercomputer facility.

## Grants

- 2012, A Scientific Workflow System for Assessing and Projecting the Health Impacts of Extreme Weather Events. Australian National Data Service Applications project. PI Keith Dear, ANU.
- 2011, Dengue Transmission under Climate Change in Northern Australia: Linking Ecological and Population Data. NH&MRC. PI David Harley, ANU.
- 2010, Suicide and Drought: Understanding Human Impacts of Environmental Change. CSIRO PhD Scholarship top-up. PI Ivan Hanigan, ANU.

# Curriculum Vitae

## Ivan C. Hanigan Ph.D

- 2010, Climate Change and Rural Communities: Integrated study of physical and social impacts, health risks and adaptive options. NH&MRC. PI Anthony McMichael, ANU.
- 2009, I was named as Professional Staff on Understanding the Health Effects of Landscape Burning and Biomass Smoke. ARC. PI Prof David Bowman UTAS.
- 2005, Health Forecasting System, NSW Health. PI Rennie D'Souza, ANU.

## Awards

- Honorable mention by NatStats 2013 Conference Awards judging panel (Brisbane Aust. March 2013):
- Nov 2012 Bhati Family India Travel Grant.
- Oct 2012 Runner Up, Australian National Data Service eResearch tools for the National Cloud competition.