

## PENEHURO FATU LEFALE



pene.lefale@outlook.com



+64 (0)4 387 1088 (landline)  
+64 (0)21 162 8829 (mobile)



[www.linkedin.com/in/penehurolefale](http://www.linkedin.com/in/penehurolefale)



[www.ilea.co.nz](http://www.ilea.co.nz)

### Address:

32 Tirangi Road, Rongotai,  
Wellington 6022 NEW ZEALAND

### Nationality:

New Zealand, Samoa.

## ACADEMIC QUALIFICATIONS

**Ph.D. Candidate (part-time)**, UNIVERSITY OF WAIKATO, 2006-current (on hold).

Doctorate in Philosophy: Climate Change and Disaster Risk Management.

*Thesis:* Managing extreme weather and climate events in Small Island Developing States of the Pacific: A vital first step towards building local adaptive capacity to anthropogenic climate change.

**Master's Degree**, The University of Auckland, Faculty of Law, Auckland, New Zealand, 2003

Master in Legal Studies (MLS)/Postgraduate Diploma in Legal Studies (PDipLS), focusing on International Law, Environmental Law, Commercial and Corporate Law (16 Points)

<u>Course</u>	<u>Description</u>	<u>Grade</u>
<b>LLM 708</b>	<b>International Environmental Law</b>	<b>A</b>

*Dissertation:* Climate Change Negotiations; Observations from the Frontline.

<b>LLM 723</b>	<b>Mining, Energy Natural Resource Law</b>	<b>B+</b>
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*Dissertation:* Emissions Trading and the Clean Development Mechanism; Transfer of Energy Efficiency and Renewable Energy Technologies (TREE).

<b>LLM 776</b>	<b>Law and Economic Regulation</b>	<b>B-</b>
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*Dissertation:* A Review of the State-Owned Enterprises (SOE) Act 1986; The New Zealand Experiment.

<b>LLM 705</b>	<b>Environmental Law and Policy</b>	<b>A-</b>
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*Dissertation:* A Review of National Strategies for Sustainable Development (NSSD) in Pacific Islands.

**Bachelor of Science Degree**, University of the South Pacific, Suva, Fiji, 1987

*Majors:* Physics & Mathematics

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## AREAS OF EXPERTISE

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Climate Science, Climate Policy  
Climate Resilience, International  
Development, Meteorology,  
International Environmental Law and  
Policy, Strategic Planning,  
Collaborative Research Design and  
Implementation, Programme  
Management.

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## LANGUAGES

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English – second language/fluent  
Samoan – native/fluent  
French, Spanish-low  
Maori, Tokelauan – low/medium

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## CERTIFICATIONS

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◆UNESCO/IOC, US NOAA, MCDEM,  
IGC/PTWC **Pacific Island Countries  
Regional Training and consultation  
workshops on strengthening tsunami  
warning and emergency response  
and ICG/PTWC New enhanced  
tsunami products**, Wellington, New  
Zealand, 2013.

◆**Aligning with your values**, Cultures  
at Work, New Zealand/MetService,  
2012.

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## PROFESSIONAL EXPERIENCE

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**Director, LeA International Consultants, Ltd, Wellington, New Zealand, 2015- current.**

Co-developed the firm in 2015 to work on climate and disaster risk reduction and resilience in the Asia-Pacific region. Expands on experience and collaboration with international agencies and organizations, development partners, Pacific Island Countries and Territories and the private sector, including the United Nations Development Programme (UNDP), the World Meteorological Organization (WMO), the United Nations Environment Programme (UNEP), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Intergovernmental Oceanographic Commission of UNESCO (UNESCO/IOC), the World Health Organization (WHO), the United Nations Office for Disaster Risk Reduction (UNISDR), Secretariat of the Pacific Regional Environment Programme (SPREP), Secretariat of the Pacific Community (SPC), Pacific Islands Forum (PIF), University of the South Pacific (USP), Pacific Islands Development Forum (PIDF), Pacific Island Countries and Territories (PICTs); New Zealand - Ministry of Foreign Affairs and Trade (MFAT), Ministry of Business, Innovation & Employment (MBIE), Environmental Science Research (ESR), the National Institute of Water and Atmospheric Research Ltd (NIWA), Meteorological Service of New Zealand Ltd (MetService); Japan - Japan International Cooperation Agency (JICA); Denmark - the Danish International Development Agency (DANIDA); Finland - Ministry for Foreign Affairs (MFA), Finnish Consulting Group (FCG) International Ltd; Germany - German Development Institute, D.I.E.; Australia - Climate Analytics, Australian Bureau of Meteorology (BoM), Australian Commonwealth Scientific and Industrial Research Organization (CSIRO); Pacific Islands National Meteorological Services (NMSs); USA - US National Atmospheric and Oceanic Administration (NOAA); New Caledonia - Institute of Research for Development (IRD), Meteo France; and, UK - the Met Office UK.

- ◆ **Leadership in Management**, The Training Practice, New Zealand/MetService, 2011.
- ◆ **South-South Cooperation on weather and climate**. WMO/Regional Training Centre, Nanjing University, China, 2010.
- ◆ **Regional Technical Meeting in Climate Information and Prediction Services (CLIPS) and Agrometeorological Applications for the Mercosur Countries**. WMO, Embrapa, UNI CAMP, INMET, Brazil, 2005.
- ◆ **Media/Public Relations**, Media/Public Relations Training workshop, SPREP, Apia, Samoa, 1997.
- ◆ **Coastal Geology**, Guangzhou, China, 1987.
- ◆ **Energy Planning**, ESCAP/PEDP/USP Energy Studies Unit (ESU) Suva, Fiji, 1986.

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PROFESSIONAL AFFILIATIONS AND MEMBERSHIPS

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- ◆ **Affiliate**, Harvard University Solar Geoengineering Research Program, <https://geoengineering.environment.harvard.edu/>
- ◆ **Member**, United Nations Intergovernmental Panel on Climate Change (IPCC), 1997-2007.
- ◆ **Trustee**, Pacific Development Conservation Trust (PDCT), Ministry of Internal Affairs/Ministry of Foreign Affairs and Trade (MFAT), New Zealand, 2016-current.

On Research and Development, I have an extensive international network of researchers and academics from the following Universities and development organizations:

**United States of America:** Harvard Kennedy School, Harvard University; International Research Institute (IRI), Columbia University; Joint Institute for Marine and Atmospheric Research (JIMAR), School of Ocean, Earth Sciences, and Technology (SOEST) and Social Science Research Institute (SSRI), National Disaster and Preparedness Training Centre (NDPTC), College of Social Sciences, University of Hawaii; School of International Service, American University; Department of Environmental Sciences, Rutgers University; NOAA Earth System Research Laboratory Physical Sciences Division, Colorado-Boulder University.

**New Zealand:** Faculty of Law, Auckland University; Joint Centre for Disaster Research (JCDR), Massey University; School of Geography, Environment and Earth Sciences, Victoria University of Wellington; Geography and Environmental Planning Programmes, Faculty of Arts and Social Sciences (FASS), Waikato University.


**Australia:** The Australian Research Council Centre of Excellence for Climate Systems and Science, School of Earth Sciences, the University of Melbourne; School of Physical, Environmental and Mathematical Sciences, Australian Defense Force Academy, University of New South Wales (UNSW); Centre for Applied Philosophy and Public Ethics (CAPPE), Charles Stuart University; International Centre for Applied Climate Sciences, University of Southern Queensland; Climate Analytics.

**United Kingdom:** Environmental Change Institute (ECI), Faculty of Philosophy and ECI, Oxford University; Tyndall Centre for Climate Change Research; Met Office UK; SolarCentury Holdings Ltd.

**France:** Institute of Research for Development (IRD), Centre International de Recherche sur l'Environnement et le Développement (CIRED/CNRS), National Centre for Scientific Research (CI-PRED/CNRS); French Centre d'Etudes Prospectives et d'Informations Internationales (CEPII).

**Samoa:** Centre for Samoan Studies, National University of Samoa (NUS).

**PNG:** Environmental Science and Geography Department, University of Papua New Guinea (UPNG).



♦ **Professional Member**, Royal Society of New Zealand (RSNZ), New Zealand, 2003-current.

♦ **Professional Member**, American Meteorological Society (AMS), 2009-current.

♦ **Chair**, American Meteorological Society (AMS) Scientific and Technological Activities Committee (STAC) on Meteorology and Oceanography in the Southern Hemisphere (AMS STAC MOSH), 2011-January 2017.

♦ **Chair**, AMS STAC MOSH 10<sup>th</sup> & 11<sup>th</sup> International Conference on Southern Hemisphere Meteorology and Oceanography (10ICSHMO, 11ICSHMO), 2012, 2014.

♦ **Member**, AMS STAC MOSH, 2009-2012.

♦ **External Research Affiliate**, Joint Centre for Disaster Research (JCDR), Massey University, Wellington, New Zealand, 2013 –current.

♦ **Board Member**, Wellington Conservation Board, Department of Conservation (DoC), New Zealand Government, Wellington, New Zealand, 2011-2016.

♦ **Member**, Pacific Climate Information System (PaCIS) Steering Committee, 2007-2011.

♦ **Senior Advisor (international)**, Pacific Risk Management 'Ohana (PRiMO), a collaboration of disaster risk management agencies and organizations in the Pacific Islands region, 2010 - current.

♦ **Member**, New Zealand Scientific and Research Delegation, US-NZ Joint Committee on Science and

**Fiji**: Pacific Centre for Environment and Sustainable Development (PACE), University of the South Pacific (USP).

**Barbados**: Centre for Resource Management and Environmental Studies (CERMES), Faculty of Pure and Applied Sciences, The University of the West Indies.

**Trinidad and Tobago**: Department of Life Sciences, The University of West Indies.

**Japan**: Policy Alternatives Research Institute, The University of Tokyo; Center for Northeast Asian Studies, Tohoku University; College of Policy Studies, Ritsumeikan University; Faculty of Environmental Earth Science, Hokkaido University; The Institute for Global Environmental Strategies (GES), Ibaraki University.

**Germany**: Wuppertal Institute for Climate, Environment and Energy, Berlin; Institute for Advanced Sustainability studies (IASS), Potsdam, Berlin; German Development Institute (DIE), Bonn.

**Italy**: National Institute of Geophysics and Volcanology/European-Mediterranean Centre for climate change (CMCC), University of Bologna.

**China**: Joint Centre for Global Change Studies, College of Global Change and Earth System Science, Beijing Normal University; Hang Seng Management College, The Faculty of Law, University of Hong Kong.

**Bangladesh**: International Centre for Climate Change and Development (ICCCAD), Dhaka.


**India**: TERI University: Environmental and Sustainability Studies, New Delhi.

**Chile**: Department of Geophysics, University of Chile, Santiago.

**South Africa**: Energy Research Centre (ERC), University of Cape Town.

**Selected consulting services:**

- *Climate Science*: provision of science based advice on climate change. (Recent projects: Tokelau Living with Change (LivC), 2016-ongoing; IPCC Regional Meeting, 2015-ongoing; Joint Commission on Science and Technology, Pacific Global Climate Observing Systems, 2015-2016; Paris International meeting on Climate Science, 2015: International Conference on Southern Hemisphere Meteorology and Oceanography (ICSHMO), Oct 2015; Tokyo Conference on Climate Geoengineering (2016) and



Technology (JCM S&T), New Zealand Government, Wellington, New Zealand, 2010-2016.

◆ **Member**, Deep South Challenge Expert Group, New Zealand National Science Challenges, Ministry of Business, Innovation & Employment (MBIE), 2013-2014.

◆ **Professional Member**, Meteorological Society of New Zealand, Wellington, New Zealand, 2006-2014.

◆ **Alternate Permanent Representative (PR)** of New Zealand with WMO, 2011-2012.

◆ **Member/Adviser** to NZ PR, New Zealand delegations to WMO Congress, Executive Council (EC), WMO RA V Sessions, WMO/SPREP's RMSD/PMC, Pacific Climate Change Round Table, Pacific Disaster Platform, 2001-2014.

◆ **WMO Scientific Officer**, represented WMO Secretary General at numerous international technical and scientific conferences (Asia, Pacific, Africa, Europe, North America, Caribbean, South and Latin America), 2005-2006.

◆ **Founding Member**, Alliance of Small Island Developing States (AOSIS), 1990-1991.

Berlin Conference on Geoengineering (2015), Senior climate adviser, Tokelau delegation to the UNDP Pacific RESPAC meeting, 13-15 March, 2017, Suva, Fiji, Resource person, SPREP, SPC, USP Tokelau workshop on Ocean Acidification, 24-27 Apia, Samoa.

- **Climate Policy**: provision of policy relevant advice on climate change and related hazards. (Recent and current projects; Tokelau Living with Change, 2016-ongoing; Representative on New Zealand's delegation to the UNFCCC COP22, Marrakech, Morocco, Nov 2016, Senior Climate Advisor, Tokelau delegation to the Pacific Regional Preparatory Meeting for the UN Ocean Conference, 15-17 March 2017, Suva, Fiji).
- **International Development**: Provision of advice on development and climate change (Projects: Tokelau LivC; SIDS meeting; UNFCCC COP22; Coalition of Atoll Nations on Climate Change (CANCC); Pacific Island Development Forum (PIDF)).
- **National Meteorological and Hydrological Services (NMHS) Management Systems**: Assessments of NMHS management systems to improve operations and skills. Analyses include: assessment of current situation, user needs, policy, legal and institutional frameworks, strategic planning and cost recovery (Recent assignment: Mid-Term Review Finnish-Pacific Project (FINPAC) Reduced Vulnerability of the Pacific Island Country villagers' Livelihoods to the effects of climate change, 2015).

#### **Research and Development services:**

- **International Climate and environmental policy making**: investigate the past and future effects of climate change on selected countries, Pacific SIDS in particular.
- **Pacific indigenous pathways for managing climate risks**: investigate adaptive capacity of vulnerable indigenous Pacific communities to climate change and related hazards.
- **Climate Intervention (Geo-engineering)**: investigate the likely implications of climate intervention (Solar Radiation Management (SRM) and Carbon Dioxide Removal (CDR)) technologies on society, the climate and environment to inform decisions and guide future research and development.

**April 2014 – September 2015: International Climate and Policy Analyst, Bodeker Scientific, Wellington, New Zealand.**

## RECOGNITION & AWARDS

- ◆ Contributor to the award of the Nobel Peace Prize to the IPCC 2007.
- ◆ MetService (NZ) Chairman of the Board's award for contribution to the IPCC, 2007.
- ◆ British Council of New Zealand (BCNZ), Royal Society of New Zealand (RSNZ), Fulbright and Montana Wines' Masters Scholarship Study tour of the United Kingdom, 2002.
- ◆ New Zealand Ministry of Pacific Island Affairs (MPIA) Louise Crawley Masters' postgraduate scholarship in public policy, 2002.
- ◆ The United States Department of Commerce National Oceanic and Atmospheric Administration (NOAA) National Weather Service (US NOAA NWS) Special Award "In recognition and appreciation of significant services rendered for the National Weather Service", 2000.
- ◆ The United States Department of Energy Atmospheric Radiation Measurement Programme (US DOE ARM) plaque for outstanding contributions to the ARM programme in the Tropical Western Pacific (TWP), jointly with SPREP, 1999.

- Implemented four US-NZ Joint Commission Meeting on Science and Technology (JCM S & T) funded international projects:
  - Review of the Pacific Islands Global Climate Observing System (PI GCOS)
  - Health and Climate Early Warning System (H-CLEWS) in Samoa
  - Organised and hosted the American Meteorological Society (AMS) 11<sup>th</sup> International Conference on Southern Hemisphere Meteorology and Oceanography (ICSHMO)
  - Explored the establishment of a Regional Training Centre Meteorology and Climatology at the University of the South Pacific (USP).

### **October 2012- March 2014: Pacific Manager, National Weather Service (NWS), MetService, Wellington, New Zealand.**

The purpose of the position is to ensure (i) effective relationships with Pacific regional stakeholders in relation to meteorological services, and (ii) effective management of regional meteorological support services that meet the requirements of development partners and or other contracting agencies.

Key accountabilities include:

Managing MetService/NIWA and other collaborating partners' delivery of international meteorological and related services' support to Pacific Islands. The support is funded by New Zealand government under MetService's contract with the Ministry of Transport (MoT contract), the United States NOAA Global Climate Observing System (GCOS) Technical Support Project (TSP), the United Kingdom Met Office World Weather Watch (WWW) Pacific Fund (PF), set up under the Voluntary Cooperation Programme (VCP) of the WWMO, Australian Bureau of Meteorology (BoM)/AusAid funded meteorological programmes in Pacific Islands, and one-off commercial contracts.

leveraging business innovations and employment opportunities from international development assistance programme ('win-win-win' value for money makeover

### **September 2006 - October 2012: Manager, International Affairs Office (IAO), MetService, Wellington, New Zealand.**



The purpose of the position was to ensure (i) effective relationships with international partners and stakeholders in relation to meteorological services and (ii) effective management of international meteorological support services that meet the requirements of development partners, other contracting agencies and private companies.


Key accountabilities include:

- managing MetService's International Affairs Office, focusing on New Zealand's participation in international weather, climate and water operational and research programmes, in particular, those programmes supported by external donors (e.g. Australian Bureau of Meteorology (BoM)/AusAID, US NOAA, WMO, Finland, Italy, EU, Japan, etc.) for Pacific Island Countries. The support is funded by the New Zealand government under MetService's contract with the Ministry of Transport (MoT contract), the United States NOAA Global Climate Observing System (GCOS) Technical Support Project (TSP), the United Kingdom Met Office World Weather Watch (WWW) Pacific Trust Fund (PF), set up under Voluntary Cooperation Programme (VCP) of the World Meteorological Organization (WMO), Australian Bureau of Meteorology (BoM)/AusAid funded projects in Pacific Islands (Climate, Weather and Tsunami regional programmes) and one off commercial contracts.
- Leveraging business innovations and employment opportunities from international development assistance cooperation ('**win-win-win**' value for money makeover to delivery of development assistance to developing countries in the WMO Regional Association V (RA V) region in particular).
- expanding, maintaining, enhancing and sustaining international cooperation and business innovations and services (non-financial performance targets).
- approach to delivery of development assistance to Pacific Islands).

expanding, maintaining, enhancing and sustaining international cooperation and business innovations and services.

**February 2006 - September 2006: PhD student, International Global Change Institute (IGCI), University of Waikato, Hamilton, New Zealand.**





**Title of thesis:** *Managing extreme weather and climate events in Small Island Developing States of the Pacific: A vital first step towards building local adaptive capacity to anthropogenic climate change.*


**March 2005 - January 2006: Scientific Officer/Acting Chief, World Climate Applications and Prediction Services Programme, including the Climate Information and Prediction Services (CLIPS) project (WCAC), World Climate Program (WCP) Department, World Meteorological Organization (WMO), 7 bis, avenue de la Paix, Case postale 2300, CH 1211, Geneva 2, Switzerland.**

Contracted by the WCP programme of WMO to manage the WCAC in collaboration with other WCP programmes, other UN Specialized Agencies with climate related mandates (e.g. World Climate Research Program (WCRP), World Climate Impacts, Assessments and Response Program (WCIRP), IPCC, Group of Earth Observation of Systems and System (GEOSS) of the Group of Earth Observation (GEO), and other International Climate Programmes and Activities under the Climate Agenda.

Areas of responsibilities include:

- implementation of Regional Climate Outlook Fora (RCOFs) and CLIPS workshops within the six Regional Associations (RA) of WMO (e.g. represented WMO at the first Asian RCOFs in Beijing, China (7-9 April 2005), WMO/International Research Institute (IRI) International Workshop on Climate Predictions and Agriculture – Advances and Challenges, Geneva, Switzerland (11-13 May 2005), the NATO Climate Advanced Climate Study Institute, Gallipoli, Italy (23 May – 3 June 2005), the Regional Technical Meeting of CLIPS and Agrometeorological Applications for the Mercour Countries (Brazil, Uruguay, Argentina, Paraguay, Ecuador), Sao Paulo, Brazil (13-16 July 2005), and the WMO RA II South America RCOF/CLIPS National Focal Points Meeting, Lima, Peru (08-18 August 2005).
- Prepare reports, meeting papers and documents for WMO constituency bodies, technical commissions (e.g. Commission on Climatology (CCI), CCI's specialized Open Program Area Groups (OPAGs), Expert Teams (ET) on various issues (e.g. ET on Climate and the Environment, ET on Climate and Health, ET on ENSO, ET on Seasonal to





Interannual Predictions (SIP), ET on Regional Climate Centres (RCC), et) and other WMO specialist scientific bodies' conferences and meetings.

- Draft the WMO's Programme on Least Developed Countries (LDC), WMO's Strategic Action Plan for Small Island Developing States (SIDS) and WMO's Disaster Prevention and Mitigation Programme.

**2001 - March 2005: Pacific Climate Analyst, National Institute of Water and Atmospheric Research of New Zealand (NIWA), NIWA Auckland, Level 3, 269 Khyber Pass Road, Newmarket, PO Box 109695, Newmarket, Auckland, New Zealand.**

**Areas of Research:**

- Adaptation and Mitigation to climate variability and anthropogenic induced climate change: developing a tool (model) on adaptation and mitigation to climate change for Pacific Islands, with traditional indigenous and ecological knowledge (TEK) of weather and climate forecasting as the basis for formulating locally appropriate adaptation response policies and measures at all levels.
- Seasonal to Interannual climate forecasts: improved understanding of seasonal to interannual climate forecasts. This research work compliments the traditional indigenous knowledge research work particularly in the verification and validation of local forecasts.
- One of the team of climate scientists producing the NIWA Island Climate Update (ICU) (3-months climate outlooks for Pacific Islands).
- Climate Policy: A Pilot Study on the Evolution of the United Nations Framework Convention on Climate Change (UNFCCC) and Kyoto protocol Greenhouse Gas Mitigation/adaptation Regime. This research brings in the political and human dimensions (TEK in particular) of climate change.

**1996 - 2000: Climatology/Meteorology Officer and United States Department of Energy Atmospheric Radiation Measurement for the Tropical Western Pacific (US DOE ARM TWP) Programme Coordinator, Secretariat of the Pacific Regional Environment**



**Programme (SPREP), Apia, Samoa, Los Alamos National Laboratory, University of California, New Mexico, USA.**

- Scientific and Technical Adviser to the Alliance of Small Island States (AOSIS) between 1996-1997 in the lead up and during the UNFCCC/Kyoto Protocol negotiations.
- Instrumental in formulating the Strategic Action Plan for the Development of Meteorology, including climatology, in the Pacific region (SDMP), 2000-2009. The SDMP has been the blueprint for development of meteorology, including climatology, in the Pacific Islands. The SDMP provides the framework for the 2012 Pacific Islands Meteorological Strategy, 2012 – 2015.
- Successful fundraiser for SPREP and the Pacific Island Countries. Secure funding from various development partners (Australia, New Zealand, USA, France, Italy, People’s Republic of China, Denmark, etc.) and agencies for implementation of the SDMP and other regional programs and activities in the Pacific (e.g. Annual Meeting of Regional Meteorological Services Directors Meeting, workshops, etc.) Procured funding for the Pacific regional climate bulletin (Island Climate Update (ICU) from various developmental partners.
- Successfully negotiated and coordinated the establishment of the two US DOE ARM climate research stations (Atmospheric Radiation and Clouds Stations (ARCS) on Papua New Guinea (PNG) and Nauru.
- One of SPREP’s staff handpicked by SPREP Management to assist consultants to pull together the SPREP Action Plan 2001-2004, SPREP Corporate Plan, 2002-2005.
- Contributor to many SPREP and Pacific agencies (e.g. other CROP) strategic and action plans, meetings, conferences, public awareness and training, resource mobilisation. Examples include the convening of the Pacific Islands Conference on Climate Change in 2000, which formulated for the first time ‘*The Pacific Islands Framework for Action on Climate Change and Sea Level Rise*’, the *Pacific Islands (PI) GCOS Action Plan*, the *first Strategic Action Plan for the Development of Meteorology in the Pacific, 1999-2009*, the *Pacific Meteorological Services Needs Analysis: Meeting the Challenges (MTC: PMS)*.



**1995- 1996: Consultant to the Government of Denmark (Danish International Development Agency (DANIDA), Ministry of Foreign Affairs), based in Ottawa, Ontario, Canada.**

Contracted by the Danish government to formulate a joint DANIDA-Pacific Islands project proposal on climate change and energy. The proposal 'Climate Change, Energy for Pacific Islands' was accepted and funded by DANIDA (NZ\$1.2 million over ten years).

**1990- 1995: Climate Change Researcher/Lobbyist, Greenpeace International, Amsterdam, Netherlands; Greenpeace New Zealand, Auckland, New Zealand.**

Established the first climate change programme for Pacific Islands. One of the founding members of the Alliance of Small Islands States (AOSIS) established during the Second World Climate Conference (SWCC) in Geneva, Switzerland, November 1990.


**1988-1990: Solar photovoltaic technician, United Nations Pacific Energy Development Programme (PEDP), Energy Studies Unit, USP, Suva, Fiji, South Pacific Institute for Renewable Energy (SPIRE), Papeete, Tahiti. French Polynesia.**

Conducted a technical assessment of the solar PV component of the former European Commission (now EU) funded Pacific Regional Energy Programme (PREP). Report of the assessment was used by the World Bank led Pacific Regional Energy Assessment (PREA) in 1992 as the guide for the restructuring of Pacific regional energy programmes.

**1982-1988: Weather Observer, Head of the Climate Division, Former New Zealand Meteorological Service, Samoa Meteorological Service (SMS) Division, Apia, Observatory, Samoa.**

Began career in meteorology as a weather observer for the former New Zealand Meteorological Service (NZMS), Apia Observatory, Mulinu, Apia, Samoa in December 1982. Appointed to the position of Climatologist after graduation in July 1987.





Promoted to Head of the Climate Division in 1988. Instrumental in the successful restructuring of the SMS, which saw a threefold increase in the number of staff and budget. Revived the dormant Samoa National Disaster Committee.

Samoaan government representative to various national, regional and international meteorological meetings between 1987-1988.

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## PUBLICATIONS

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- Lefale, P.F., et al., 2018:** Effect of Climate Change on Extreme Events relevant to the Pacific Islands [in “Pacific Marine Climate Change Report Card Science Review 2018: pp 50-73. Pacific Commonwealth Member States, London, UK.” <https://www.gov.uk/government/publications/commonwealth-marine-economies-cme-programme-pacific-marine-climate-change-report-card-and-scientific-reviews>
- Lefale, P.F., P. Faiva and C. Anderson., (2017):** *Living with Change (LivC): An Integrated National Strategy for Enhancing the Resilience of Tokelau to climate change and related Hazards, 2017-2030*. Wellington, New Zealand: Government of Tokelau and LeA International Consultants, Ltd.
- Lefale, P.F., P. Faiva and C. Anderson., (2017)** *Living with Change (LivC): An Integrated National Strategy for Enhancing the Resilience of Tokelau to climate change and related Hazards, 2017-2030 – IMPLEMENTATION PLAN, 2017-2022*. Wellington, New Zealand: Government of Tokelau and LeA International Consultants, Ltd.
- Sugiyama, M., S. Asayama, A. Ishii, T. Kosugi, J.C. Moore, J. Liu, P.F. **Lefale**, W. Burns, M. Fujiwara, A. Ghosj, J. Horton, A. Kurosawa, A. Parker, M. Thompson, P. Wong and L. Xia., (2017): The Asia-Pacific’s role in the emerging climate engineering debate (in press, *Climatic Change Journal*).
- Lefale, P.F., (2016):** AOSIS: Climate Clubs and the Alliance of Small Islands States (AOS). In: *Climate Alliances après Paris, The Potential of Pioneer Climate Alliances to contribute to Stronger Mitigation and Transformation*, Ott., H, S. Baurer, F. Mersmann, L. Weisher, S. Huq, N. Nadir, F. Rahmen, E. Rovere, C. Cassen, J.C. Hourcade, E. Rennkamp, A. Marquard and R. Bakiika (in press).
- Swennenhuis, J, P. White, P.F. **Lefale**, O. Silfverberg, J. Pelton., (2015): Report of the Mid-Term Review Finnish-Pacific Project (FINPAC) Reduced Vulnerability of the Pacific Island Country villagers’ Livelihoods to the effects of climate change, August 2015, FCG International Ltd, 41 pages + annexes (Confidential Report to the Finland Ministry for Foreign Affairs (MFA)).

- Lefale**, P.F. and Cheryl Anderson., 2014 Climate Engineering and Small Islands: Panacea or Catastrophe?, <http://geoengineeringourclimate.com/2014/05/06/climate-engineering-and-small-island-states-panacea-or-catastrophe-opinion-article/>
- Lefale**, P.F. and Howard Diamond., 2014 Pacific Climate Case Study: Tropical Cyclone Evan – A Rare Early Season Major Storm in the South West Pacific, Scientific Poster accepted for the 94<sup>th</sup> American Meteorological Society (AMS) Conference, Atlanta, Georgia, USA, February 2014.
- Pelton, J and **P. Lefale.**, 2012: Finnish-Pacific Project to Reduce Vulnerability of the Pacific Island Countries’ Livelihoods to the effects of climate change (FINPAC) & Improved Capacity of the Pacific Island Countries National Meteorological Services to deliver weather and climate services (FINPAC-FMI), Project Appraisal Final Report, Presented to the Ministry of Foreign Affairs, Finland, Finnish Consulting Group Ltd (FCG), Helsinki, Finland, 51 pp. (confidential report).
- Lefale**, P.F., D. King, A. Ngari, 2012: Managing climate risks using Polynesian knowledge, State of the Climate report 2011, US NOAA and WMO publication, NOAA, <http://www1.ncdc.noaa.gov/pub/data/cmb/bams-sotc/climate-assessment-2011-lo-rez.pdf>
- SPREP, 2012: Pacific Islands Meteorological Strategy (PIMS), Contributor, SPREP and WMO publication, Apia, Samoa.
- Lefale**, P.F., 2009: Ua ‘afa le Aso. Stormy Weather today: traditional ecological knowledge of weather and climate; The Samoa Experience. Climatic Change, Vol. 100, Number 2, 317-335, DOI:10.1007/s10584-009.9722-z <http://www.springerlink.com/content/w4170n44610n2431/>
- Lefale**, P.F., 2007: Enhancing Meteorological Services in the Pacific. Meteo World, October 2007, World Meteorological Organization (WMO), Geneva, Switzerland. [http://www.wmo.int/pages/publications/meteoworld07/\\_archive/en/october2007/pacific.html](http://www.wmo.int/pages/publications/meteoworld07/_archive/en/october2007/pacific.html)
- Mimura, N., L. Nurse, R.F. Mc Lean, J. Agard, L. Briguglio, **P. Lefale**, R. Payet and G. Sem, 2007: Small Islands, Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M. L. Parry, O.F. Canziani, J.P., Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 687-716. <http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter16.pdf>.
- Nyenzi, B., and P.F. **Lefale.**, 2005: El Niño Southern Oscillation and Global Warming. In: *Advances in Geosciences*, 6, 1-7, SRef-ID: 1680-7359/adge/2005-6-1, European Geosciences, Germany. <http://www.adv-geosci.net/6/95/2006/adgeo-6-95-2006.html>
- Lefale**, P.F., 2005: Catching a Tuna with an ENSO Prediction, How Climate Information and Prediction Services (CLIPS) is helping Small Island Developing States in the Pacific (SIDS-Pac), In: *WMO Bulletin*, Vol. 55 (1), and World Meteorological Organization (WMO).
- Lefale**, P.F., S. Burgess and J.M. Salinger., 2005: *Weather, Climate and the Squash Industry of Tonga*, Report for the United Nations Food and Agriculture Organization (FAO) Sub-regional Office for the Pacific, Apia, Samoa. National Institute of Water and Atmospheric Research of New Zealand (NIWA), NIWA Report, Published by NIWA Auckland, Auckland, New Zealand. 35 pp.
- Salinger, J.M and P.F. **Lefale.**, 2005: The Occurrence and Predictability of Extreme Events over the South West Pacific with particular reference to ENSO. In: *Natural Disasters and Extreme Events in Agriculture*, Sivakumar, M.V.K., R.P. Motha and P.D. Harièada (eds.), World Meteorological Organization (WMO). Springer Berlin Heidelberg New York, Springer, 39-48.
- Lefale**, P.F and D.N.T. King., 2005: Facing weather and climate variability with indigenous knowledge, Island Climate Update (ICU), Issue No. 52, National Institute of Water and Atmospheric Research of New Zealand (NIWA), NIWA Auckland, Auckland, New Zealand, p.6. Available online at



<http://www.wamis.org/countries/southpac/spacClimate200412.pdf>

- Lefale, P.F.**, 2004: The role of traditional indigenous knowledge of weather and climate in improving scientific understanding of future climate changes: The Samoa Experience, In: *Asia Pacific Network (APN), University of the South Pacific (USP), US National Oceanographic and Atmospheric Administration (NOAA), University of Hawaii East West Centre (EWC), National Institute of Water and Atmospheric Research of New Zealand (NIWA) Training Institute on Climate variability and Extremes Course Booklet*, Published by the APN/USP/NOAA/EWC/NIWA, Suva, Fiji. 85 pp.
- Lefale, P.F.**, 2004: Climate Change Negotiations: Observations from the Frontline, In: *Asia Pacific Network (APN), University of the South Pacific (USP), US National Oceanographic and Atmospheric Administration (NOAA), University of Hawaii East West Centre (EWC), National Institute of Water and Atmospheric Research of New Zealand (NIWA) Training Institute on Climate variability and Extremes Course Booklet*, Published by the APN/USP/NOAA/EWC/NIWA, Suva, Fiji. 85 pp.
- Lefale, P.F.**, 2003: Indigenous knowledge in the Pacific, TIEMPO, Issue 49, Available online at [http://www.tiempocyberclimate.org/newswatch/xp\\_feature040730.htm](http://www.tiempocyberclimate.org/newswatch/xp_feature040730.htm)
- Lefale, P.F.**, 2003: Seasons in Samoa, Water and Atmosphere (W&A), Vol. 11, 2., National Institute of Water and Atmospheric Research of New Zealand (NIWA), NIWA Christchurch, Christchurch, New Zealand. Available online at <http://www.niwa.co.nz/pubs/wa/11-2/samoa>
- Lefale, P.F., Lehodey, P., Salinger, J.**, 2003: *Impacts of ENSO on Pacific Island Countries*, NIWA Client Report AKL 2003-15, Report for the World Wide Life Fund for Nature (WWF), Washington DC, USA, Published by NIWA Auckland, New Zealand, 16 pp.
- Lefale P.F., Salinger, J.M., Reid, S.**, 2003: *Climate and Weather of Nouakchott, Mauritania*, Report for the National Radiation Laboratory (NRL), Christchurch, New Zealand, Published by NIWA Auckland, New Zealand, 33 pp.
- Lefale, P. F.**, 2003: Equity, Climate Change and Sustainable Development: A brief Overview. In: *World Wide Life Fund for Nature (WWF), Workshop Report "The Kyoto Protocol and Preventing Dangerous Climate Change"*, Rarotonga, Cook Islands, 22-24 September 2003, WWF Pacific, Suva, Fiji, 11-12, 23.
- Lefale, P.F, J.M., Salinger, A. Volentras and T. Nakalevu.**, 2003: *Your Passport to Climate Change*, Book for the Canadian Development International Agency (CIDA) and South Pacific Regional Environment Programme (SPREP), Apia, Samoa, NIWA publication, Published by NIWA Auckland, New Zealand, 33 pp.
- Salinger, M.J., Clarke, G., Collins, D., Diamond, H., Ngari, A., Nitschke, K., Plummer, N., **Lefale, P.F.**, Pratt, C., Raj, R., and Taiki, H; 2003: *The Pacific Island Global Climate Observing System (PI-GCOS): Action Plan 2003-2008*. ISBN: 982-04-247-6, South Pacific Regional Environment Programme, Apia, Samoa, 29 pp.
- Lefale P.F., Salinger J.M., Reid S.**, 2002: *The Climate and Weather of Christmas Island, Kiribati*, National Institute of Water & Atmospheric Research Ltd (NIWA), Report prepared for the National Radiation Laboratory (NRL), Ministry of Health, Christchurch, New Zealand, Published by NIWA Auckland, New Zealand, 35 pp.
- Lefale, P.F.**, 2002: *A Review of National Strategies for Sustainable Development (NSSD) in Pacific Islands*. Dissertation Paper (No. 4), International Environmental Law and Policy, Faculty of Law, University of Auckland, Auckland, New Zealand.
- Lefale, P.F.**, 2002: *A review of the State Owned Enterprise (SOE); The New Zealand Experiment*. Dissertation Paper (No. 3), Law and Economic Regulations, Faculty of Law, University of Auckland, Auckland, New Zealand.
- Lefale, P.F.**, 2001: *Emissions Trading and the Clean Development Mechanism; Transfer of Energy Efficiency and Renewable Energy Technologies (TREE)*, Dissertation Paper (No. 2), Mining, Energy and Natural Resources Law, School of Law, University of Auckland, Auckland, New Zealand.
- Lefale, P.F.**, 2001: *Climate Change Negotiations-Observations from the Frontline*. Dissertation Paper (No. 1), International Environmental Law), Faculty of Law, University of Auckland, Auckland, New Zealand.



- Lefale**, P.F., 2001: Impacts of Climate Change on Pacific Islands, Pacific Ecologist, Issue 1, Published by Pacific Institute of Resource Management, Wellington, New Zealand. Available online at <http://www.converge.org.nz/cdn/resources/material/pacificecologist.html>
- Krishna, R., P.F. **Lefale**, M. Sullivan, E. Young, J.C. Pilon, C. Shultz, G. Clarke, M. Hassett., S.B. Power, R. Prasad, T. Veitch, K. Turner., E. Shea, H. Taiki., and R.R. Brook., 2001: Pacific Meteorological Services: Meeting the Challenges, SPREP, WMO and Bureau of Meteorology, 98 pp. Available online at [http://www.bom.gov.au/inside/eiab/reports/ar0102/Appendix/13\\_Publications\\_2001-2002.shtml](http://www.bom.gov.au/inside/eiab/reports/ar0102/Appendix/13_Publications_2001-2002.shtml)
- Salinger J., **Lefale**, P.F, Wratt D., Mullan B., 2001: *Review of the Working Group I Contribution to the Intergovernmental Panel on Climate Change Third Assessment Report (IPCC TAR); Implications for Pacific Island Countries*, Report for the South Pacific Regional Environment Programme (SPREP), Apia, Samoa, Published by NIWA Auckland, New Zealand, 36 pp.
- Manton, M.J., Della-Marta, P.M., Haylock, M.R., Hennessy, K.J., Nicholls, N., Chambers, L.E., Collins, D.A., Daw, G., Finet, A., Gunawan, D., Inape, K., Isope, H., Kestin, T.S., **Lefale**, P., Leyu, C.H., Lwin, T., Maitrepierre, L., Ouprasitwong, N., Page, C.M., Pahalad, J., Plummer, N., Salinger, M.J., Suppiah, R., Tran, V.L., Trewin, B., Tibig, I., Yee, D.: 2001, 'Trends in Extreme Daily Rainfall and Temperature in Southeast Asia and the South Pacific: 1961-1998:', *International Journal of Climatology*, **21**, 269-284.
- Clements, W.E., F. J. Barnes, L. Jones, A. Haruta, M. Ivey, and P. **Lefale**., 2000: The Tropical Western Pacific 2000. In: *The 10<sup>th</sup> ARM Science Team Meeting proceedings, San Antonio, Texas*. Available online at <http://www.arm.gov/publications/proceedings/conf10/title.stm>
- Clements, W.E., F. Barnes, L. Jones, M. Ivey, A. Koontz, T.P. Ackerman, J.H. Mather, P. **Lefale**, A. Pitcher, and J. Cain., 1999: Nauru – The Second ARM Tropical Western Pacific Site. In: *9<sup>th</sup> ARM Science Team Meeting Proceedings, San Antonio, Texas*. Available online at; <http://www.arm.gov/publications/proceedings/conf09/title.stm>
- Lefale**, P.F., and CR. Lloyd., 1993: Photovoltaics for Household Energy use in Pacific Island Nations (Fiji Study), *Renewable Energy (UK)*, Vol. **3**, No. 2/3., 153-163.





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## REFERENCES

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### **Dr. Peter Kiely, ONZM**

Chairman, Pacific Cooperation Foundation  
Partner, Kiely, Thompson and Caisley Barristers &  
Solicitors, PO Box 7359, Auckland 1141

#### **NEW ZEALAND**

Tel: + 64 (9) 366 5110

Email: [Kiely@ktc.co.nz](mailto:Kiely@ktc.co.nz)

### **Dr. Howard Diamond**

Climate Science Program Manager, US NOAA Air  
Resources Laboratory (ARL), Atmospheric  
Turbulence and Diffusion Division  
Oak Ridge, TN 37830 **USA**

Tel: + (1) 301 427 2475 Fax: + (1) 301 427 0033

Email: [howard.diamond@noaa.gov](mailto:howard.diamond@noaa.gov)

### **Dr. Neil Gordon**

Former Permanent Representative (PR) of New  
Zealand with WMO, Former General Manager,  
NWS, MetService, NZ  
262 Te Waka Road, RD 1, Otaki, 005518

#### **NEW ZEALAND**

Tel: +64(29)4700 762

Email: [neil.d.gordon@gmail.com](mailto:neil.d.gordon@gmail.com)

### **Dr. John Zillman**

Former President of WMO, Former Director,  
Australian Bureau of Meteorology (BoM), Former  
PR of Australia with WMO.  
c/o Australian Bureau of Meteorology  
GPO Box 1289, Melbourne VIC 3001  
700 Collins Street, Docklands, Melbourne, Victoria

#### **AUSTRALIA**

Tel: +(613) 9669 4000

Fax: +(613) 9669 4699

Email: [J.Zillman@bom.gov.au](mailto:J.Zillman@bom.gov.au)

### **Dr. Jeremy Leggett**

Non Executive Chairman  
Solar Century Holdings Ltd  
50 Great Sutton St  
London, EC1VODF **UNITED KINGDOM**

Tel: + 44 (0) 20 75 491 000

Email: [jeremy.leggett@solarcentury.com](mailto:jeremy.leggett@solarcentury.com)