



United Nations  
Educational, Scientific and  
Cultural Organization



National Committee of New Zealand  
Te Komiti o Aotearoa mo Nga Mahara o te Ao  
Memory of the World

## Nomination Form Aotearoa/New Zealand Memory of the World Register

### Title of the documentary heritage item or collection

This should be the complete name of the documentary heritage as it is usually known. Include dates if they are usually part of the name.

Richard Davis Meteorological Records 1839-1851

### Section 1: Nominator Details

This section is for information about the source of the nomination and the authority under which it is made. A copy of the Aotearoa/New Zealand Memory of the World programme's privacy policy is available on its [website](#).

#### 1.1 Name of nominator (person or organisation)

Full name of the person(s) or organisation(s) making the nomination. *The nomination may be submitted jointly by more than one person or organisation*

Kirsty Webb Principal Curator, Archives and Manuscripts, Heritage Collections, Auckland Libraries

#### 1.2 Relationship to the nominated documentary heritage

Explain the nominator's relationship to the documentary heritage. *For example, the nominator may be a responsible officer of the library or archive which owns it; or he/she may be a private individual with a research interest in it.*

I am the curator of the manuscript collection to which these two items belong.

#### 1.3 Contact person

Provide the name of the person who is responsible for the nomination process.

Kirsty Webb

#### 1.4 Contact details

Provide sufficient details to allow easy communication with the contact person.

Email: [Kirsty.webb@aucklandcouncil.govt.nz](mailto:Kirsty.webb@aucklandcouncil.govt.nz)

Phone:

## Section 2: Identity and Description of the Documentary Heritage

### 2.1 Title of inscription

If the nomination is successful, what do you want it to be titled (e.g. for certificates)? Please use a maximum of 6 words.

Richard Davis Meteorological Records 1839-1851

### 2.2 Description of the documentary heritage

This should include a full description of what is included in the documentary heritage, its scope and its size. Include details of the type of documents e.g. letters, film, images etc.

The weather diaries are a set of two volumes of meteorological observations made by Richard Davis, a farmer and missionary, at the Church Missionary Society (CMS) stations at Te Waimate and Kaikohe. The observations were made over two separate periods, from 1839 to 1844 and from 1849 to 1851. They are to date the earliest and most consistently documented land-based meteorological records available for New Zealand, and they contribute to our knowledge of early settler life and farming practice in New Zealand, and to our understanding of historic weather patterns and current climate change.

The documentary heritage consists of two autograph cardboard covered notebooks, and they record the following observations: rainfall, temperature and barometric pressure, descriptions of cloud cover, wind speed and direction, and notes on extreme weather events.

Volume 1 (NZMS 378, 44 pages of text, 38 x 23 cm) covers from 1839 to 1844 and from Jan to March 1849.

Volume 2 (NZMS 14, 22 pages of text, 32 x 25 cm) covers from April 1849 to 1851.

Dr Richard Lorrey and Petra Pearce of NIWA (National Institute of Air and Water Research) have worked on the Davis records at the Central Library, and in 2016 they jointly published a research paper for the journal *Climate of the Past* based on their research. Both scientists commented on the rigour of the measurements and stressed their importance as a baseline for understanding climate change in New Zealand. They also noted that historic weather data for the Southern Hemisphere is patchy compared to the Northern, and that these records are important because they plug some of those gaps. Dr Lorrey and Ms Pearce have also submitted these records to an international database that is part of the ACRE (Atmospheric Circulation Constructions over the Earth) Project. This project supports research into global climate change.

### 2.3 Catalogue, registration or bibliographic details

This should include any bibliographic, registration, inventory, classification and/or call numbers that uniquely identify the documentary heritage.

**NZMS 378** Rev. Richard Davis. Register of thermometer and barometer. [Jan.1, 1839-Jan 31 1844; Jan 1, 1848-31 March 1849]

**NZMS 14** Rev. Richard Davis. Register of thermometer and barometer. April 1849 [to 20 September 1851]

Link below to the records for both manuscripts on *Kura: Heritage Collections Online*

<https://kura.aucklandlibraries.govt.nz/digital/?p=q&collection=p20062coll2&search=NZMS%2014&field=all&mode=all&conn=>

## 2.4 Visual documentation

Where available and appropriate, supply photographs or videos of the documentary heritage. Please provide images that can be used for the purposes of promoting of the World.

Creator unknown: Printed item featuring a photomechanical portrait of Reverend Richard Davis.  
Ref: PAColl-7344-97. Alexander Turnbull Library, Wellington, New Zealand. [/records/23073407](#).

Creator unknown. Illustration of Swaraton, Waimate, Bay of Islands. 5-1951  
Auckland Libraries Heritage Collections

NZMS 378 Cover of first Register covering 1839-44, 1848-49  
Auckland Libraries Heritage Collections

NZMS 378 First page of recorded measurements Jan and Feb 1839  
Auckland Libraries Heritage Collections

NZMS 14 Entry for 30 July 1849, describing snow on the hills.  
Auckland Libraries Heritage Collections

## 2.5 Bibliography

This should be, where possible, a list of 3-6 published sources that have been produced using (i.e. drawing heavily on) the documentary heritage to attest to the item/collection's significance.

### Articles

Lorrey, A. M. and Chappell, P.R. "The 'dirty weather' diaries of Reverend Richard Davis: insights about early colonial-era meteorology and climate variability for northern New Zealand, 1939-1851", *Climate of the Past*, vol. 12, pp. 553-573, 2016. (See also online link <https://doi.org/10.5194/cp-12-553-2016>).

"Dear Diary: A pioneer of meteorology". *Water & Atmosphere* 15, p. 6, June 2016. (See also online link <https://www.niwa.co.nz/publications/wa/water-atmosphere-15-june-2016>).

"Information in New Zealand's first weather diaries may help climate-change studies". *Stuff*, 09:33 a.m., April 20 2016. <https://www.stuff.co.nz/science/79024541/information-in-new-zealands-first-weather-diaries-may-help-climatechange-studies>, accessed 23/7/2019.

Leith Huffadine. "The 'weather detectives' using clues from the past to study changing climate". *Stuff*, 12:58 p.m., Dec 06 2017. <https://www.stuff.co.nz/science/99501713/the-weather-detectives-using-clues-from-the-past-to-study-changing-climate>, accessed 23/07/2019.

### NIWA media releases

"Scientists rediscover New Zealand's first weather diaries". NIWA media release, 9 March 2016. <https://www.niwa.co.nz/news/scientists-rediscover-new-zealand%E2%80%99s-first-weather-diaries>

"Weather detectives' saving historical records". NIWA media release, 1 December 2017. <https://www.niwa.co.nz/news/weather-detectives-saving-historical-records>

### TV item

English missionary dubbed NZ's first weatherman. April 11, 2016 One News. <https://www.tvnz.co.nz/one-news/new-zealand/english-missionary-dubbed-nzs-first-weatherman>

### Section 3: Assessment Against the Criteria

#### 3.1 History/provenance

Provide a summary of the provenance of the documentary heritage. For example, how and when was the material acquired and integrated into the holdings of the institution?

NZMS 378 was presented to the Library by the Rev. John King Davis on 6 February 1918 and was accessioned directly into the library's NZ reference collection.

Rev. John King Davis was the youngest son of Rev. Richard Davis, b. 1858.

NZMS 14 was presented to the Old Colonist's Museum by Mrs Davis, widow of the Rev. John King Davis on 31 May 1923. Subsequently transferred to the Central City Library when the Old Colonists Museum was closed and its contents split between the then Auckland Public Library, Auckland Art Gallery and Auckland Institute and Museum.

The volumes are now permanently held in the manuscripts collection (Heritage Collections, Central City Library, Auckland Libraries).

#### 3.2. Uniqueness of the documentary heritage

Give a brief explanation of why the documentary heritage is unique and irreplaceable.

The manuscripts are of significance because of their contribution to our historical understanding of the early settlement period of New Zealand's history, and for their scientific contribution to our understanding of contemporary climate change.

The historic value of the diaries lies in their authorship by Richard Davis and his involvement with the Church Missionary Society. The CMS missionaries had a complex, interdependent relationship with the mana whenua they lived amongst. They saw their purpose in terms of an evangelical 'civilising' mission that emphasised conversion to Christianity, to the English language and to English farming practices, values and modes of life. Davis was a prolific diarist and correspondent, and the weather records have a close connection to his personal journals and letters, now held in the Hocken Collections, University of Otago Library. (Auckland Libraries hold photocopy sets of these records). Together, they are a valuable insight into life at a critical time in the development of Aotearoa/New Zealand.

The weather diaries are also unique from a scientific standpoint. The meteorological records they contain are the oldest land-based weather observations currently known for New Zealand. They include reports of "weather events" (including snowfall and frost) in the Bay of Islands in the nineteenth century. NIWA scientists Dr Richard Lorrey and Ms. Petra Pearce have validated the measurements against weather records from navy expedition vessels in New Zealand waters at the same time, and consider them to be reliable. The precision, consistency and the length of time over which the data was collected means scientists have a reliable mid-nineteenth century baseline for long term climate research. The validated data has also been contributed to the ACRE Project (Atmospheric Circulation Reconstructions over the Earth). ACRE is an international initiative that specialises in the recovery of historical climate data, making it available to scientists investigating links between short term weather variability and more significant climate change.

### 3.3 Assessment against the significance criteria

Provide an explanation of what criteria the documentary heritage meets and why it meets those criteria. The documentary heritage must meet at least one of the criteria in this section. An explanation of each criteria is given on the front page of this form.

**Time:** Early-mid 19<sup>th</sup> century land-based meteorological data and weather commentary covering two periods: 1839-1844 and 1849-1851, collected just prior to the advent of regular meteorological record keeping in Auckland in the 1850s by the Royal Engineers.

**Place:** Waimate North and Kaikohe, Bay of Islands.

These were the location of two of the three CMS mission stations Davis was associated with, and are where the weather data was collected. The weather records don't cover his first place of residence in Paihia.

**People:** Richard Davis was born in Dorset in 1790, and was a farmer and the son of a farmer. At the time the thirty-four year old Davis was sent to the Bay of Islands in 1824, he had only been with the CMS a year. His practical experience, education and commitment to missionary work nevertheless made him an ideal choice for the CMS, who were starting to look beyond the immediate need for self-sufficient mission stations to the introduction of larger scale farming and horticulture.

Davis initially settled in Paihia with his wife Mary Ann and their children, but in 1831 the CMS sent him to Te Waimate with instructions to establish a model farm. The purpose was two-fold; to help support the mission community in a practical sense, and to introduce new agricultural methods to local Māori who were employed as farm workers. Successful farming depends on the farmer having a good understanding of the local climate and how to grow crops best suited to it. The weather journals are a detailed record of the local climate. Davis was not a scientist, but he had a scientist's rigour, and the regular observations he made allowed him to build up his knowledge over time, and to adjust his farming practices for the unfamiliar and often variable conditions he found in the Bay of Islands.

Davis also served as an itinerant school teacher and lay minister, and he was ordained as a Minister in 1852. Mary Ann died in 1837, and Davis married twice more (to Anne Iselton, and then in 1855 to Jane Holloway King) before his own death in 1863. He had nine children, three of whom were born in New Zealand. He is buried near the Mission House in Te Waimate.

**Subject and Theme:** Weather, climate, early missionary history, natural history

**Form and Style:** An early NZ example of detailed, consistently documented qualitative and quantitative data, recorded in the author's own hand. Dr Hocken's Church Missionary Society Records were inscribed on the UNESCO MOW Register in 2014 (Registration No. 14), and these records include the three volumes of Richard Davis's personal journals and correspondence, which correlate with these meteorological journals.

### 3. 4 Testimony of at least two independent experts

The committee requires testimony from at least two independent people or organisations who can give an informed opinion about the significance and provenance of the documentary heritage.

The informed opinion should focus on the criteria for inscription provided above and on the front page of this form. Please provide up to one page from each expert in support of your submission.

#### Expert One

Name	Dr Andrew Lorrey, Principal Scientist Climate and Environmental Applications, NIWA
Qualification(s)	PhD
Contact number	

Email	
Paragraph in support	<p>The weather diaries of Reverend Richard Davis are a remarkable set of early colonial era documents that, to my knowledge, provide the first regularly chronicled instrumental weather and climate observations for New Zealand. They are some of the oldest continuous, multi-year and multi-daily weather observations in Oceania outside of continental Australia. These meteorological registers are special because they represent a contribution to the earliest scientific heritage for New Zealand. These records extend the timeline of our cultural history related to land-based scientific study of weather into the first half of the 19<sup>th</sup> century.</p> <p>We have knowledge that Davis had instruments and was observing the weather as early as 1836 from an independent diary he kept, but his meteorological registers start in 1839. The Davis observations include twice-daily temperature measurements that have been used as proxies for minimum and maximum daily temperatures. His register also included barometric pressure, wind direction and general remarks about the cloud cover, rainfall, and the state of the environment (including potential drought and flood). Observations that Davis made using a barometer have been independently corroborated in a parallel comparison with measurements from ships of exploration including the USS Vincennes (Wilkes; USA), the HMS Erebus (Ross; England), and the <i>Astrolabe/Zeelee</i> (D'Urville; France). They suggest the pressure observations this clergyman made were robust. Davis' barometric measurements are now incorporated in important international climate databases that are used to reconstruct Earth's weather in the early instrumental period.</p> <p>Davis also documented one of the earliest ex-tropical cyclone impacts on Northland, suggesting landfall of a very strong storm system. This observation helps to enrich our long-term context for extremes that are expected to increase for New Zealand in the future warmer world. In addition, the remarkable account Davis made of snowfall persisting for two days on the hills where he lived, his details of ice formation on local millponds, and his record of frost events reinforce our contemporary climate change trends that show our world is changing.</p>

**Expert Two**

Name	Petra Pearce, Climate Scientist, Group Manager – Climate & Environmental Applications, NIWA
Qualification(s)	MSc
Contact number	
Email	
Paragraph in support	<p>The meteorological registers authored by Reverend Richard Davis provide insight into northern New Zealand's climate during a period with very few additional instrumental observations. The only other instrumental observations taken during that time in New Zealand were by ships, and these were of a short-term nature compared with the Davis Diaries which spanned multiple years. Davis observed phenomena which do not occur in northern New Zealand's present climate – e.g. snow on the hills persisting for multiple days and ice freezing the pond. These observations give context to how New Zealand's climate has changed in the past 170 years. This baseline data is crucial for climate science research in New Zealand and has fed into international climate datasets and models which are used for understanding our past climate and predicting future climate changes.</p>

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### Expert Three

Name	Kate de Courcy, Retired Manuscripts Librarian and Archivist
Qualification(s)	MA, Dip. NZLS
Contact number	
Email	
Paragraph in support	<p>As a former Senior Curator, Archives and Manuscripts at Auckland Libraries, my reactions on seeing the weather diaries over 20 years ago were admiration for the stamina and application which resulted in the enormous amount of data collected, and the recognition that someday, a researcher would be delighted to find them.</p> <p>Richard Davis was responsible for developing the mission farm at Waimate North, with James Hamlin, George Clarke and Rev. William Yate. During these testing years he kept both traditional diaries and also the 'weather diaries' as a simple but consistent statistical record of weather, wind, temperatures and any climate conditions worth noting which would affect the style of farming he brought from England to a new country.</p> <p>The rows of figures in the weather diaries may not be interesting to a layman's eye, but they are possibly the earliest records of land-based climate statistics in New Zealand. Their survival is thanks to Rev. Richard Davis' youngest son, the Rev. John King Davis, who became anxious that the history and relics of the missionaries, as some of the earliest European settlers with a profound influence on the history of New Zealand, should not be lost. He encouraged missionary descendants to place their family heirlooms in the 'careful guardianship'* of a public institution, the Old Colonists' Museum.</p> <p>Thanks to this transition from private hands to a public collection, the diaries became available to all. 180 years after the first entries, the diaries have been used for research which neither Richard Davis nor his son could have envisaged - the history of climate and its contribution to the study of climate change. They are of national and international importance.</p> <p>* Rev. J. King Davis. Letter, 24 Oct 1915 to Hon. E. Mitchelson. From: Old Colonists' Museum. Records. Auckland Libraries Heritage Collections. NZMS 928.</p>

The above experts have given their written permission to provide this information to the Memory of the World Committee and they have agreed that the provided information can be published without email and contact details and that they can be contacted by the Register Subcommittee if required.  Yes  No

### Section 4: Legal Information

#### 4.1 Owner (name and contact details)

Provide the name and full contact details of the owner or owners, whether an institution or an individual.

Auckland Libraries  
Heritage Collections  
Te Kura Tawhiti - Research, Heritage and Central Library  
Ngā Pātaka Kōrero o Tāmaki Makaurau - Auckland Libraries  
Central Library, 44-46 Lorne Street, Auckland 1142

#### 4.2 Custodian (name and contact details if different from the owner)

Provide the name and full contact details of the custodian, whether an institution or an individual. Sometimes the custodian of the documentary heritage may not be the same as the owner. It is essential to establish both before a nomination can be added to the Register.

As above

#### 4.3 Legal status

State whether the documentary heritage is owned privately, or by a public institution, or by a commercial corporation. Details of legal and administrative powers for the preservation of the documentary heritage should be the name of the Act, or other instrument of administrative power, that gives the owner and/or the custodian the legal power to preserve the documentary heritage.

The volumes are owned by a public institution (Auckland Libraries).

#### 4.4 Accessibility

Provide a brief description of how the documentary heritage may be accessed. All access procedures and restrictions should be clearly stated.

There are three levels of access:

- access to verify the significance, integrity and security of the material. This is the minimum condition for inscription
- access for reproduction, which is strongly encouraged
- public access in physical, digital, or other form

There is full public access to the documents in physical and in digital form.  
The physical volumes are held in a secure environmentally-controlled closed storage area in Heritage Collections, Central City Library. Supervised access to the volumes is provided on request in the Heritage Collections reading room on Level 2 of the Library.

The two volumes are fully digitised and are available on Kura: Heritage Collections Online  
<https://kura.aucklandlibraries.govt.nz/digital/?p=q&collection=p20062coll2&search=NZMS%2014&field=all&mode=all&conn=>

The digitised climate data is also held in NIWAs national climate database.

#### 4.5 Copyright Status

For documentary heritage items that are subject to copyright, details should be provided on the relevant copyright legislation and copyright owner(s). Any other factors affecting the legal status of the documentary heritage should be noted. For example, is any institution required by law to preserve the documentary heritage in this nomination?



These items are out of copyright.

### Section 5: Stakeholders

The nominating institution is accountable for consultation with all relevant stakeholders before submitting the nomination.

#### 5.1 Owner

The owner(s) of the documentary heritage has been consulted:  Yes  No

#### 5.2 Custodian

The custodian(s) of the documentary heritage has been consulted:  Yes  No

#### 5.3 Significant Stakeholders

Stakeholders with a significant interest in the content of the documentary heritage e.g. iwi, family members, have been consulted, if relevant:  Yes  No

### Section 6: Care and Preservation and Risk Assessment

Identify any risks to the survival of the nominated documentary heritage. We understand if you have not done a formal risk assessment.

Note: a successful inscription may assist you to obtain funds to preserve and care for the nominated documentary heritage.

If your nomination is successful we may request additional information on the care and preservation of the inscribed documentary heritage.

The volumes were assessed in 2018 by David Ashman (Preservation Manager, Auckland Libraries) prior to digitisation. At that time minor repairs were carried out on the binding, and the volumes were fully enclosed in custom-made archival folders.

The volumes are held in closed access environmentally controlled storage at the Central Library. The storage area is security alarmed and has an inert gas fire suppression system installed. The Central Library has an active Disaster Management plan in place for the care of its collections and for minimisation of risk through fire/flood/pest damage. Handling risk is minimised through appropriate staff training, monitoring of access in the reading room, and basic care and handling information provided to researchers using the items.

### Section 7: Summary

Provide a brief summary describing the documentary heritage and how it meets the criteria for inscription on the Aotearoa/New Zealand Memory of the World Register.

Keep your summary to no more than 300 words as, if successful, it will be used on the website ([www.unescomow.org.nz](http://www.unescomow.org.nz)) to describe why the documentary heritage has been inscribed on the New Zealand Register and given UNESCO recognition.

In 1824, Richard Davis, a 34-year-old farmer and lay preacher from Dorset, arrived in New Zealand with his family and settled at the Church Missionary Society's Paihia mission station, where he put his agricultural experience to good use as a gardener. After Samuel Marsden bought land from Ngāpuhi in Waimate North in 1830, Davis was sent there to set up a model farm and to continue his work as a teacher and itinerant missionary.

At the Waimate North mission station, Davis worked hard to establish fruit trees and food crops, grown from seed sent out from England. Success depended on understanding the local climate, and this relied on careful meteorological observation over time. In two weather journals covering 1839-1844 and 1849-1851, Davis recorded temperature and barometric pressure and described cloud cover, wind speed and direction and extreme weather (including heavy frosts and a snowfall that persisted for two days on the hills around the mission station).

After his death in 1863 the journals remained in the Davis family until they were gifted to the Old Colonists Museum in 1923. After the Museum closed in 1957, the journals were transferred to the manuscript collection in Auckland Libraries, where they remain.

In 2009, NIWA scientist Dr Andrew Lorrey found a reference to the journals on the National Register of Archives, and after studying the volumes at the Central City Library with the help of the Manuscripts librarian Kate De Courcy, identified them as the earliest continuous land-based records currently known in New Zealand. The quality of Davis's observations has allowed Dr Lorrey and Petra Pearce (NIWA climate scientists) to develop a better understanding of the historical weather record of northern New Zealand. The precision, consistency and the length of time over which the measurements were recorded also provides a key baseline for contemporary climate research. Lorrey and Pearce (nee Chappell) published their findings in 2016.

## Section 8: Promotion of documentary heritage

Inscription to a UNESCO Memory of the World register provides an opportunity to promote the importance of documentary heritage.

Give a brief overview of how your institution will use the opportunity of a successful nomination to promote the Memory of the World programme and the importance of documentary heritage. You may wish to consult with communications staff in your organisation to provide an answer to this question.

Auckland Libraries has a high level strategic goal ('Taonga Tuku Iho – Legacy'), which includes the following:

- developing programs focused on environmental outcomes
- partnerships developed to promote re-use culture
- increased use of heritage content via *Kura: Heritage Collections Online*

A successful inscription allows our Heritage Collections unit to contribute directly to this strategic goal, and to align it with the purpose of the UNESCO Memory of the World register, to draw attention to significant documentary heritage.

Specifically, if these volumes are successfully nominated

- a link to the UNESCO MoW register will be incorporated into the *Kura* records for these items
- the nomination will become a new opportunity for our Council marketing team to further promote the 2016 discovery of these records and their significant scientific contribution. (This will include sending a press release to NIWA for potential incorporation into their online publicity).
- the UNESCO inscription of the journals will be promoted as part of our Libraries contribution to Auckland Council's wider program of work supporting climate change awareness
- the journal will be featured in February 2020 on our "Real Gold" case in the Heritage Collections Reading Room. Dr Lorrey has also agreed to give a talk on the discovery of the journals and his ongoing research based on them, and this will also be recorded as a SoundCloud podcast on the Libraries website.
- Dr Lorrey has also indicated there may be additional NIWA press publicity for the manuscripts in Nov 2019 for an already-planned event and talk based on his discovery of a snowfall at Waimate recorded in the Davis journals.

### Section 9: Permission to use visual documentation

The Aotearoa/New Zealand Memory of the World Committee will also work with you and your communications staff to obtain publicity for the programme and for the successful inscriptions.

Do you give permission for the Committee to use the visual documentation you have provided for Aotearoa/New Zealand Memory of the World publicity purposes (e.g. for brochures/website)?

Yes

No

I would like to be consulted first

### Section 10: Declaration of Authority

I am authorised to nominate the above documentary heritage to the Aotearoa/New Zealand Memory of the World Register.

Name: [Kirsty Webb](#)

Date: [28/8/2019](#)