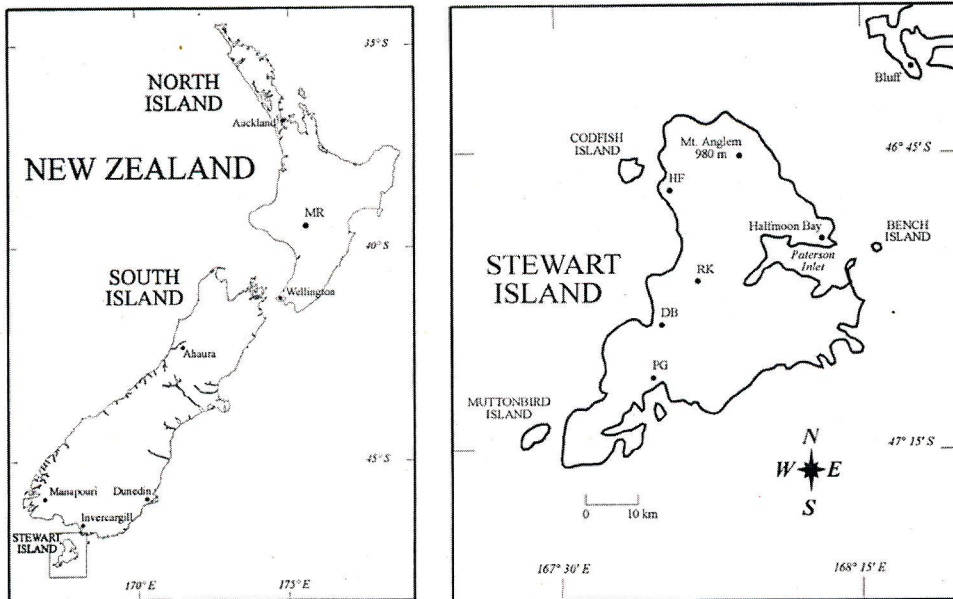


PEP II

This report on PEP II activities uses selected abstracts and presentations from the 1995 Nagoya Symposium to illustrate the strength and diversity of the research being carried out within the vast and complex region spanned by the Transect. A full account of the Meeting and the Abstracts of all the papers can be found in: Mikami, T, Matsumoto, E., Ohta, S. and Sweda T. 'Paleoclimate and Environmental Variability in Austral-Asian Transect during the past 2000 years'. Proceedings of the 1995 Nagoya IGBP-PAGES/PEP-II Symposium, Nagoya. (277pp.).

NEW ZEALAND

Tree-ring records from subantarctic forests in New Zealand



David M. Lawrence

Fig. 1 - Left: Map of New Zealand's North and South Islands and Stewart Island. Manapouri is location of another pink pine site. Ahaura and Mangawhero River Bridge are silver pine sites. Right: Map of Stewart Island and vicinity showing location of pink pine tree-ring sites. DB, Doughboy Bay; RK, Mt. Rakeahua; PG, Pegasus. Most recent collection (1995) was from Hellfire (HF) site, Ruggedy Mountains, northwestern Stewart Island. (in D'Arrigo, Buckley, Cook, Wagner, "Temperature-sensitive tree-ring width chronologies of pink pine from Stewart Island, New Zealand", in press)

The New Zealand Government has agreed to fund NZ\$300k for drilling of Lake Poukawa on North Island. This is one of the key sites identified as a part of the ICDP.

JOHN DODSON

Temperature-sensitive tree-ring width chronologies for the Southern Hemisphere include several we have recently produced for pink pine (*Halocarpus biformis*) from Stewart Island, the southernmost of the three main islands of New Zealand (D'Arrigo et al. a and b. in press). These chronologies are positively correlated with warm-season land and marine temperature records for southern New Zealand and vicinity. We have also developed chronologies of silver pine (*Lagarostrobos colensoi*), closely related to the huon pine (*L. franklinii*) of Tasmania, for two sites: Ahaura, South Island, and Mangawhero, North Island, New Zealand. Both are updated from series originally published by LaMarche et al. in 1979.

Although there are shorter intervals of comparable warmth, the highest 20-year periods of record for Stewart Island occurred during the middle 1950s-1970s, coinciding with record warming since around 1950 in New Zealand. The updated Ahaura and Mangawhero series also show above-average growth during the recent warm period, with the highest 20-year growth intervals since 1350 occurring in recent decades.

(continued on next page)

(continued from page 3 - PEP I)

- 2) Methodological techniques and issues of ice core analysis;
- 3) Regionally-specific research accomplishments related to glacier-climate interactions and ice core drilling in the Americas.

Discussions were then conducted on individual regions of the Americas where there are excellent prospects for recovering paleo-environmental records from ice cores. Specific needs and ideas for research projects in each region were identified and plans were laid out for integration of the various projects into a proposal to be submitted to IAI in 1997. ■

• Large-Scale Biosphere-Atmosphere Experiment in Amazonia (LBA) (C. Nobre et al., Brazil)

To foster understanding of regional-scale transport in Amazonia, of energy, heat, mois-

ture, carbon and other trace constituents, and their interactions and feedbacks, process studies at local to meso-scale are proposed, coordinated under the LBA experiment. To disentangle the role of human impact from natural environmental and climate variability, these experiments include a paleoclimate component, that focuses on identification of the effects the different past precipitation and temperature modes on Amazonian ecosystems. The proposed plan, jointly developed by B. Turq (ORSTOM, Brazil) and P. Colinvaux (Smithsonian, US), calls for development of a network of multiproxy paleoclimate records analyzed with decadal to millennial time resolution. The network of paleoenvironmental records overlaps the network of sites proposed for hydrological, biochemical, and ecological process studies. ■

• Dendrochronological Studies in Tropical South America with Special Emphasis on Bolivian Forests (J. Boninsegna, R. Villalba, F.A. Roig (Argentina), J. Argollo, S. Beck (Bolivia))

Field reconnaissance, collection and dendrochronologic analysis of different tree taxa from the subtropical and tropical forests in South America should provide information on the potential of tree-ring research for paleoclimate in these poorly known environments.

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Fig. 2
Top graph: Hellfire, Ruggedy Mt., Stewart Island pink pine chronology.
Bottom graph: actual and estimated gridded warm-season temperature and tree-ring data prewhitened to account for effects of autoregression.

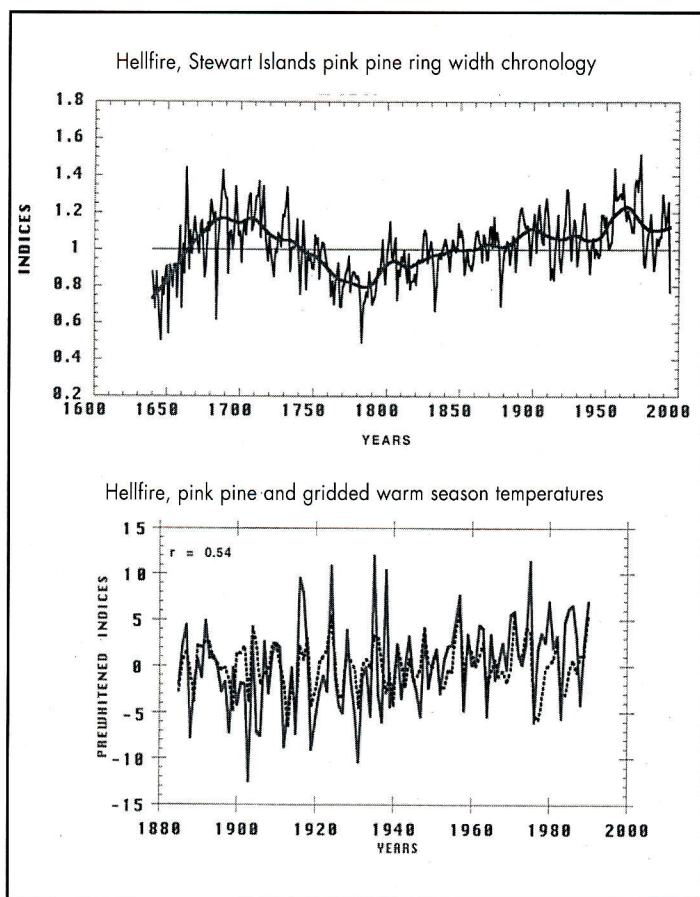
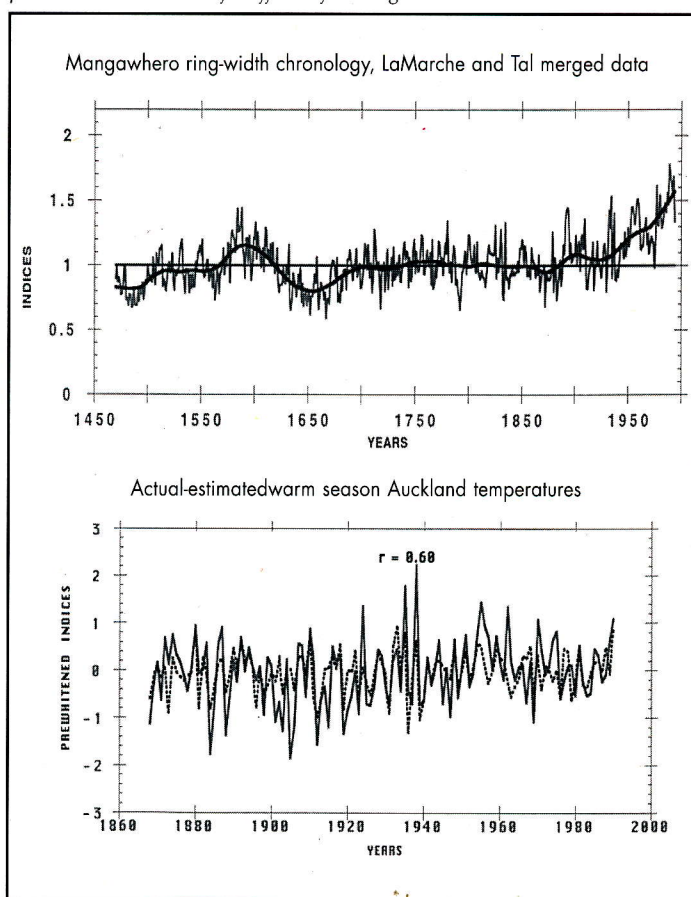


Fig. 3
Top graph: update of silver pine chronology for Mangawhero River Bridge, North Island, merged with raw data from chronology (LaMarche et al., 1979).
Bottom graph: actual and estimated Auckland warm-season temperatures based on Mangawhero chronology. Temperature and tree-ring data prewhitened to account for effects of autoregression.



These chronologies supplement previously published tree-ring data from New Zealand (LaMarche et al. 1979, Norton et al. 1989), Tasmania (Cook et al. 1991, 1992, 1994), and southern South America (Lara and

Villalba 1993, Villalba et al., 1994). Together these tree-ring archives improve our geographical coverage and long-term perspective of climatic variability for data-sparse regions of the Southern Hemisphere.

ROSANNE D. D'ARRIGO, EDWARD R. COOK, BRENDAN M. BUCKLEY AND PAUL J. KRUSIC
 Full references can be obtained from the first author at:
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CHINA

Paleoclimate records available from Chinese historical documents

Historical documents are a major resource of paleoclimate information in China. They contain the records on drought, floods, rain, snow, freezing, frost, wind, dustfall, atmospheric physical phenomena such as twilight, sky-color, etc., and past records of crops, famine, and insects pests etc.. The earliest one dated from 780 BC.. A systematic study has been conducted on 8128 sources including government history books, local gazetteers, and literature etc.. After detailed proof-reading, cross-checking and establishing the chronology of events, a Chinese historical climate database has been established in the NCC (National Climate Center, China). A map locating all the sites of records can be obtained from the author.

Table 1.
 Overall percentages of the paleoclimate records mentioning different items in Chinese historical documents

Item	drought	flood	rain	snow	storm	hail	frost	wind
Percent %	18	22	9	3	2	5	1	5
Item	dust	cold	hot	locust	epidemic	famine	harvest	other
Percent %	2	2	1	6	3	11	7	3

The table shows some statistics for major items of the database. In addition, there are the daily weather records extracted from some private diaries, and government weather reports in historical times.

structuring regional climatic series mapping the real conditions of extreme climate cases and compiling a chronological table of some rare paleoenvironmental events.

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References:
 Zhang De'er, 1995, Paleoclimate and Environmental records available from Chinese historical documents
 In: Paleoclimate and Environmental Variability in Austral-Asian Transect during the Past 2000 Years.
 (eds. T. Mikami, E. Matsumoto, S. Ohta and T. Sweda) Nagoya University, Japan, P.20-26.

The records have been employed in recon-