

The New Zealand Baseline Atmospheric Programme at Baring Head

Martin R Manning and David C Lowe
DSIR Physical Sciences
PO Box 31312, Lower Hutt
New Zealand

Phone: (64) (4) 566 6919
Fax: (64) (4) 569 0655
E-mail: srgimrm@grv.dsir.govt.nz
srgidcl@grv.dsir.govt.nz

Note

From 1 July 1992 the authors and all New Zealand atmospheric research will be part of a new crown research institute whose name is expected to be

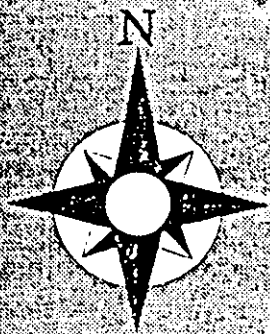
New Zealand National Institute of Atmosphere and Water

Requirements for Baseline Monitoring

- 1. Know what you are going to measure and why**
careful choice of site and instrumentation
- 2. Be able to select relevant parts of data records**
*wind trajectories should be available,
measure different species identifying air source region*
- 3. Use consistent high quality measurement techniques**
*changes in data should be due to changes in the real
world, not to instrumentation or techniques*
- 4. Regular quality assurance and network intercalibration**
must be able to prove to others that the data is correct
- 5. Regular analysis and interpretation of data**
*must demonstrate that the data achieves objective 1,
eg through use of data in modelling programs*

Sampling site location

BARING HEAD NEW ZEALAND

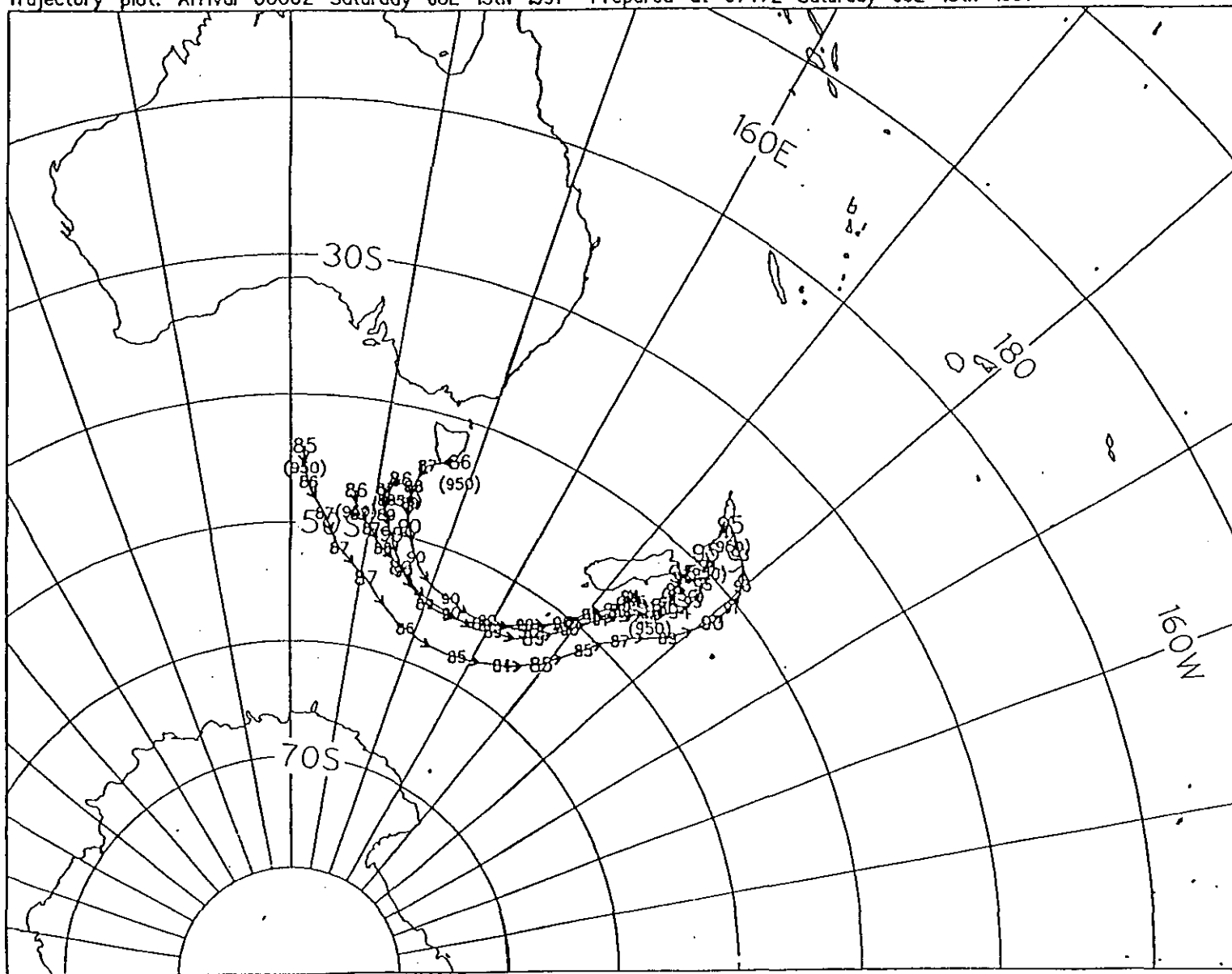


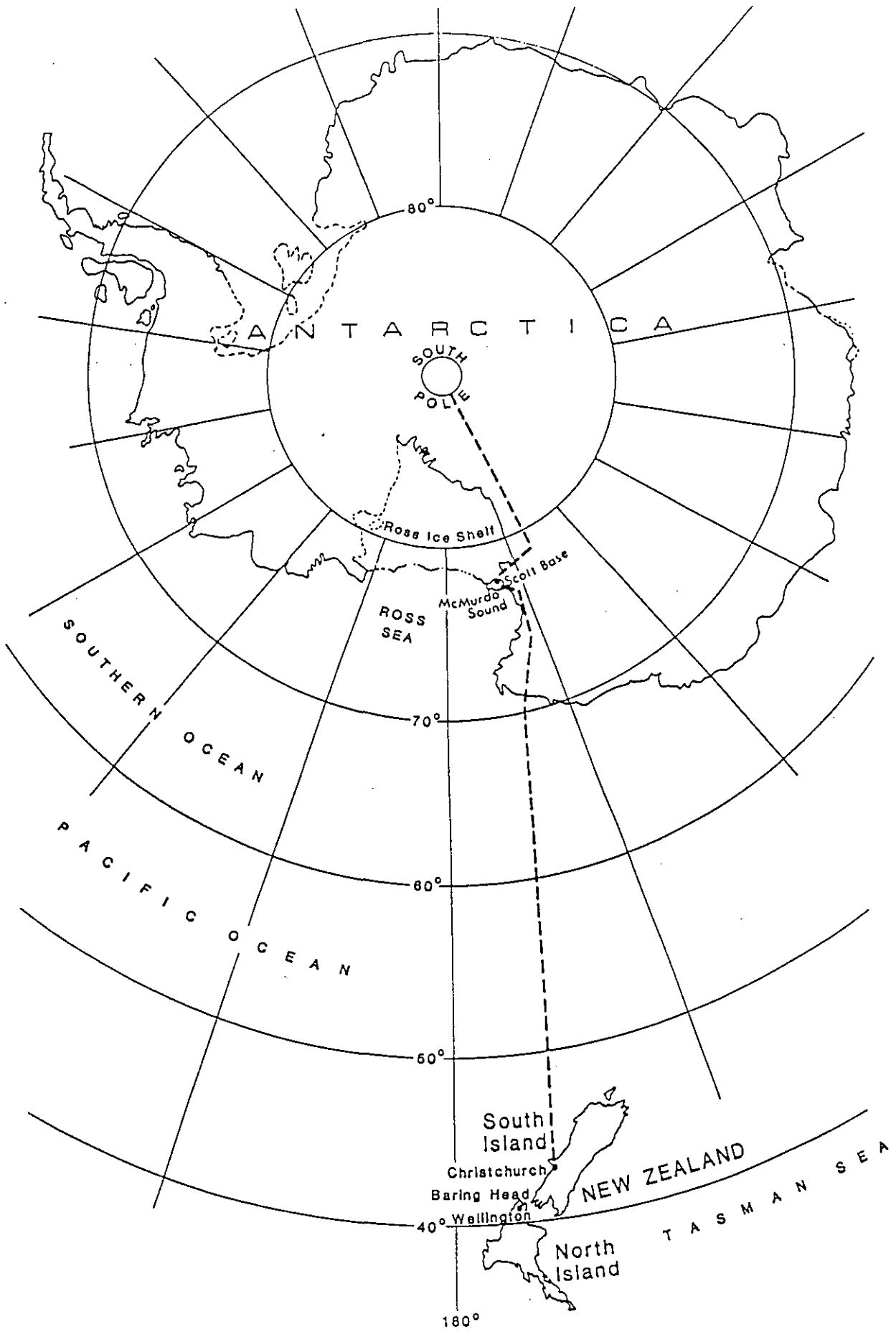
Sampling location
Sampling site
DSIR Laboratory

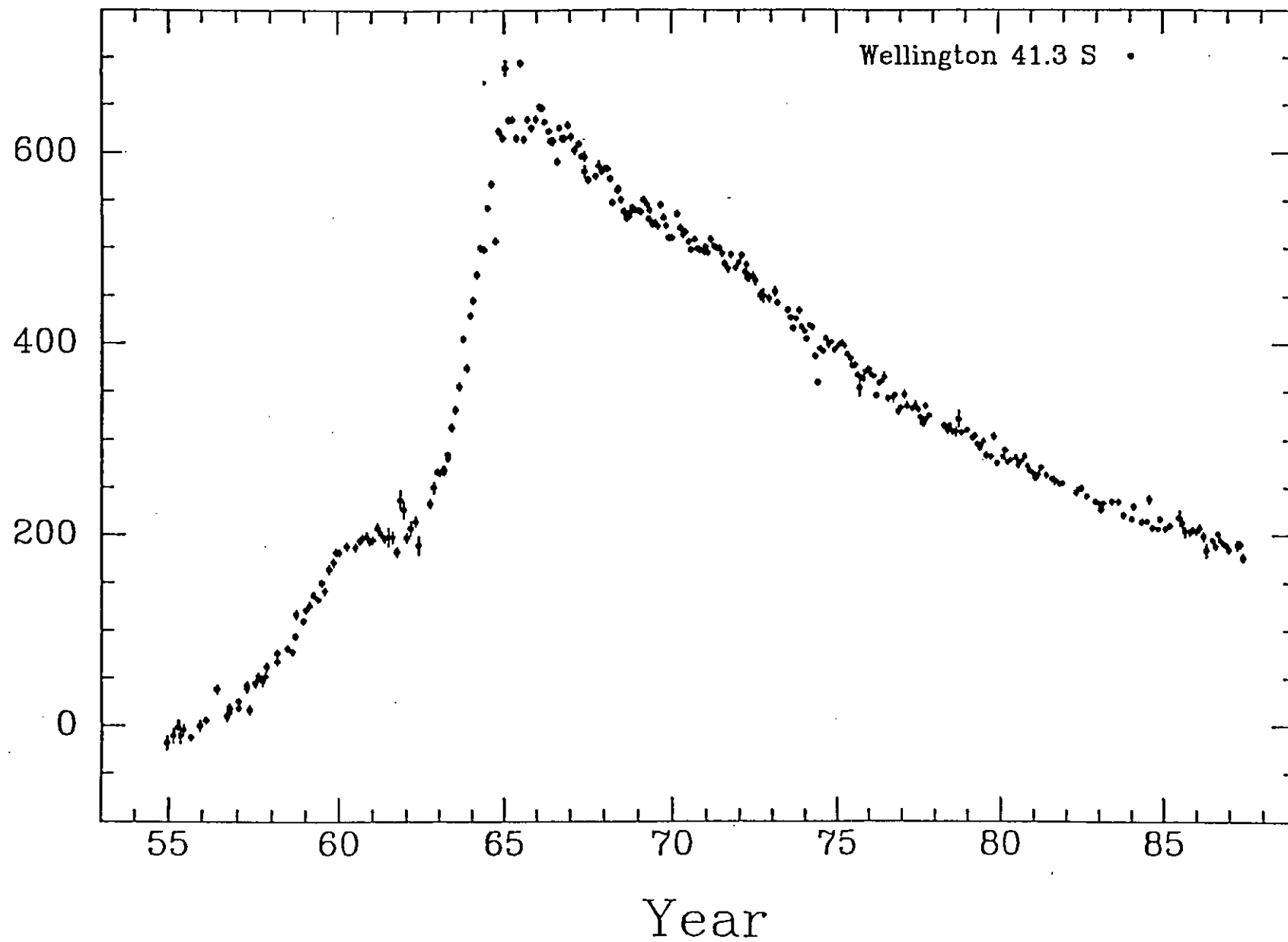
DSIR
Lower Hutt
Laboratory

typical wind
trajectories from
S and SE

Trajectory plot: Arrival 0000Z Saturday JUL 13th 1991 Prepared at 0747Z Saturday JUL 13th 1991

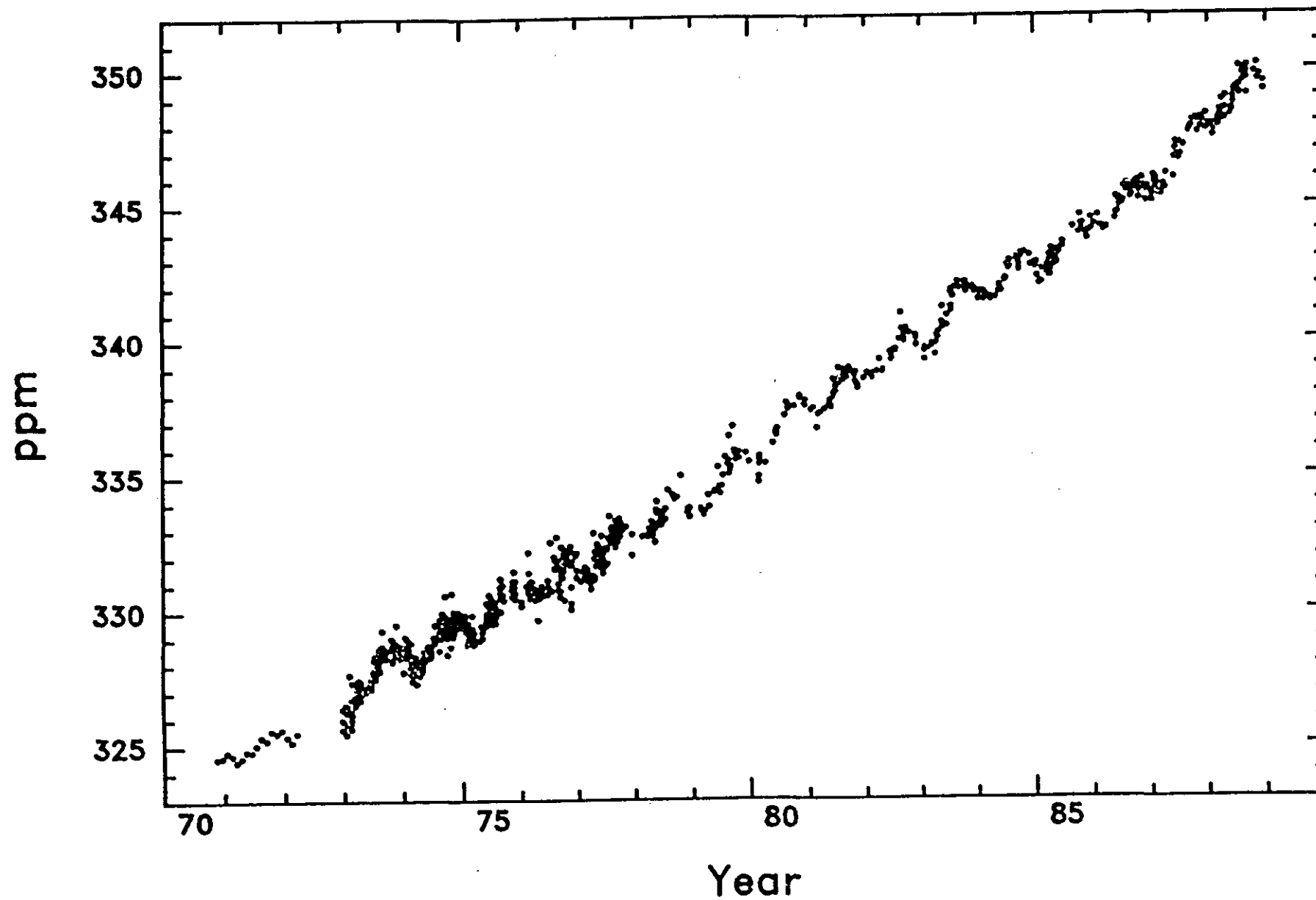






Carbon dioxide concentration for Baring Head southerly winds

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Baring Head Programme as at 1992

Species	samples/yr	Start	Method	Agency
$^{14}\text{CO}_2$	12	1954 ¹	beta counting	DSIR
CO_2	continuous	1970	NDIR	DSIR/SIO
Tritium (HTO)	52	1974 ²	beta counting	U Miami
CO_2	25	1977	flask/NDIR	SIO
$^{13}\text{CO}_2$	25	1985	mass spec	SIO/U Gron
$^{14}\text{CH}_4$	6	1986	AMS	DSIR
^7Be	52	1987	beta counting	USDOE
$^{13}\text{CH}_4$	40	1988	mass spec	DSIR
CH_4	80	1989	GC	DSIR
^{14}CO	50	1989	AMS	DSIR
^{13}CO , C^{18}O	50	1989	mass spec	DSIR
CO	50	1989	manometric	DSIR
NMHC	continuous	1989	GC	NZMS/KFA
O_2/N_2	26	1991	mass spec	URI
O_3	continuous	1991	Dasibi	NZMS
CO	50	1991	GC	DSIR
Aerosol physics	intermittent	1991	impactor	NZMS
Aerosol chem	intermittent	1991	ion chrom	DSIR
DMS	intermittent	1991	ion chrom	U Auck

Notes

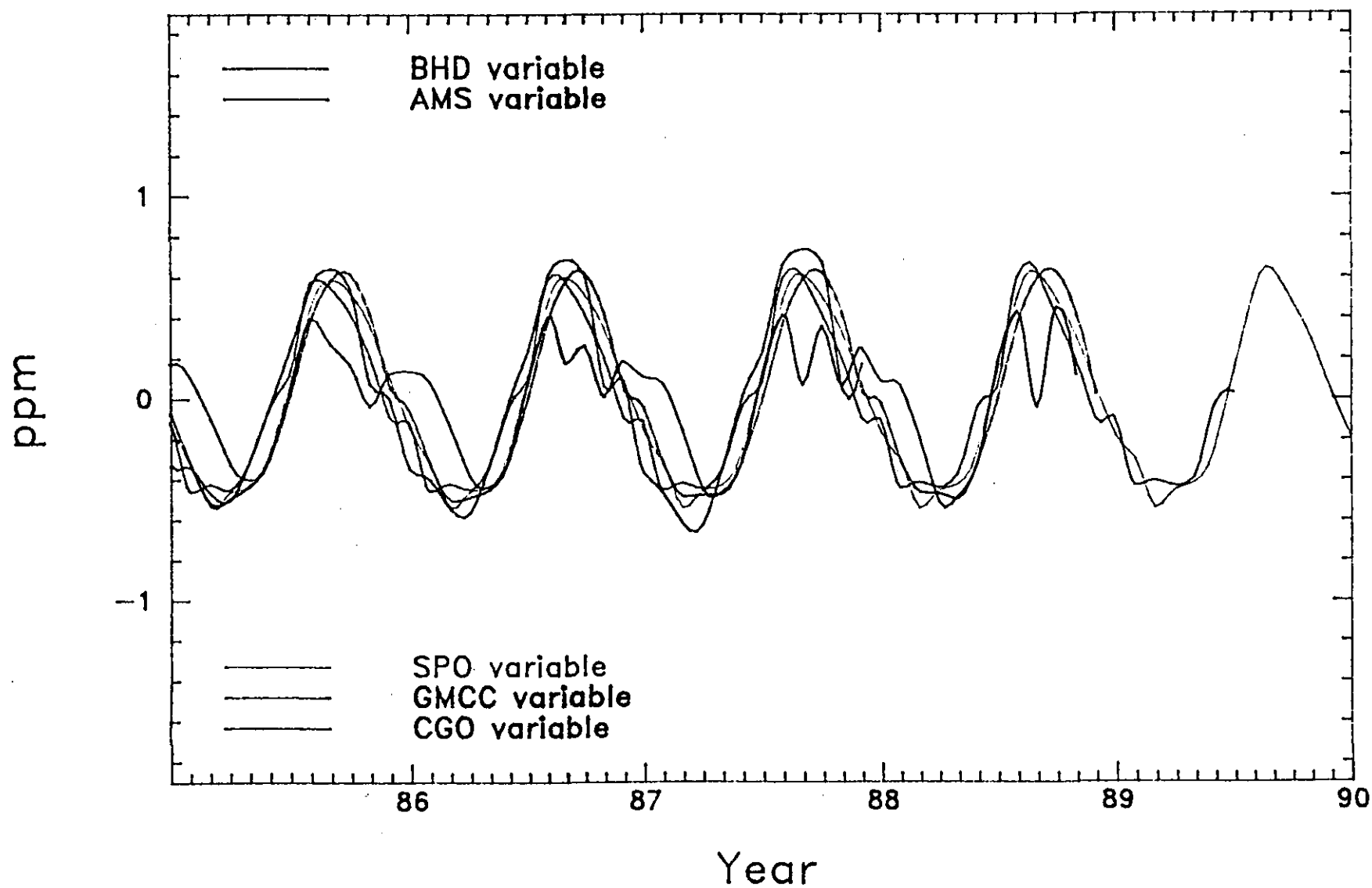
¹ at Makara site near Wellington till 1989

² terminated in 1987

Abbreviations

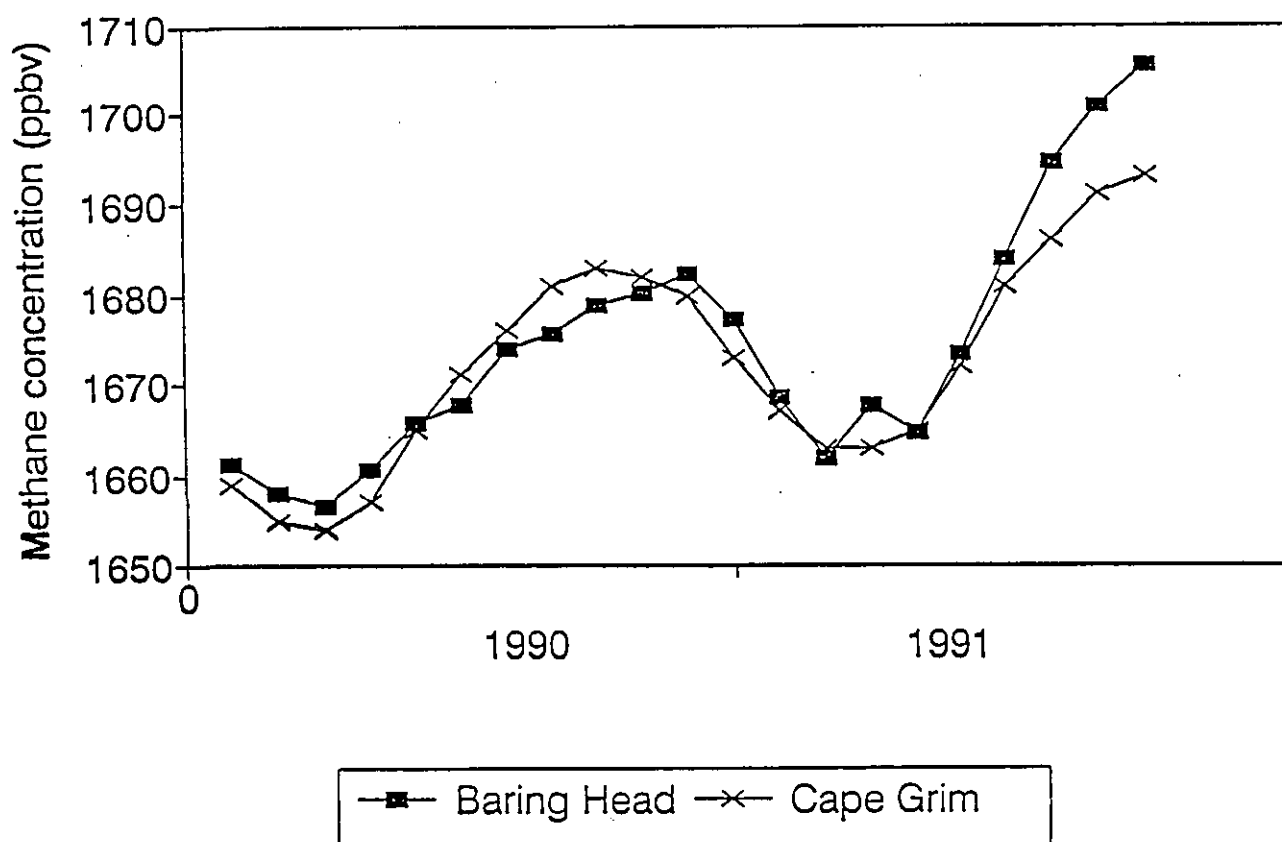
DSIR	- Department of Scientific and Industrial Research, New Zealand
KFA	- Kernforschungsanlage, Germany
NZMS	- New Zealand Meteorological Service, New Zealand
SIO	- Scripps Institution of Oceanography, USA
U Auck	- University of Auckland, New Zealand
U Gron	- University of Groningen, Netherlands
U Miami	- University of Miami, USA
URI	- University of Rhode Island, USA
USDOE	- United States Department of Energy, USA

Seasonal components of Austral CO₂ data

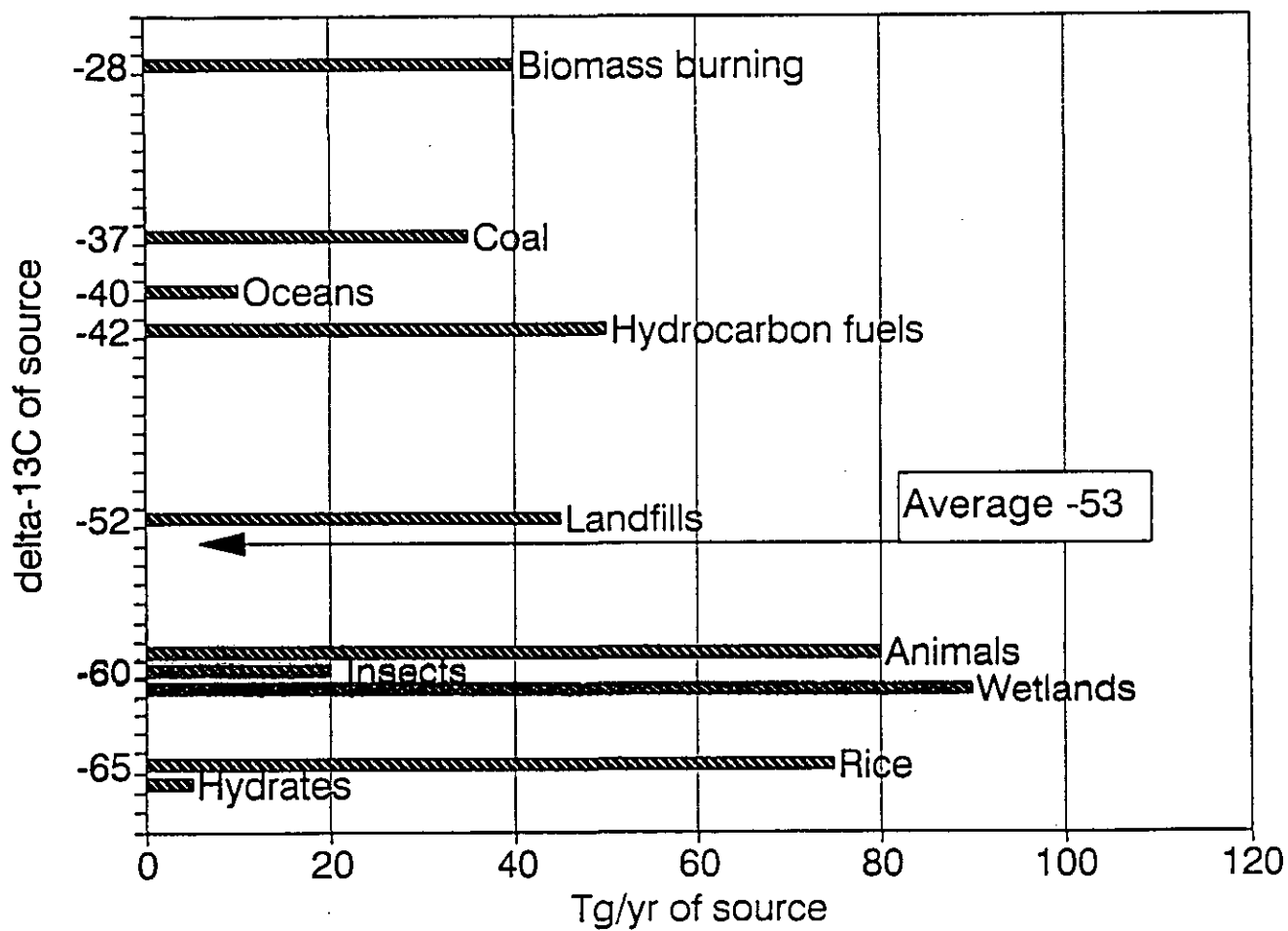


Atmospheric Methane

Monthly means Baring Head and Cape Grim



CH4 Budget - delta-13C constraint



New Zealand CO data

